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### A PSYCHIATRIC PROGRAMME FOR PEACE.

By R. S. ELLERY,  
Melbourne.

If science, in the words of Lancelot Hogben, "is an ordinance map to direct our efforts in changing the world", then obviously something is wrong—alarmingly wrong—and the map needs redrawing and amplifying.

For the second time within a generation of living men the crass lunacy of war has made a mockery of human knowledge and destroyed some of the finest fruits of human achievement, shattering the faith by which we lived and spreading shame and sorrow in the path of progress and enlightenment. Science has made possible much of this carnage and destruction. It has apparently done nothing to advance the claims of peace or to reshape and strengthen those rules of conduct by which human beings may live in comparative harmony. Our ordinance map has led us into darkness and disaster—largely, it seems, because the physical sciences have been fostered and developed at the expense of the biological sciences, which come nearer to the secret of human conduct. The map, therefore, is incomplete and misleading. It is not only valueless but dangerous. To follow it again would lead to the certain shipwreck of civilization. To redraw it, with deeper understanding, wider tolerance and greater sympathy, with a knowledge of human behaviour comparable to that of physics and chemistry, may not only establish a safeguard, but may also develop a chart for the ultimate uplifting of the human spirit.

None will deny that the human spirit needs uplifting, for seldom has it sunk so low. We have erred and strayed from the ways of sanity and there is no health in us. Behaviour has been brutalized and faith sullied by the callous claims of war. The simple decencies of life,

innocent enjoyments, liberal ideas, artistic tastes, have been swept aside in a whirlwind of suffering and combativeness. Truth has been flouted by a lying propaganda. Justice has been traduced by the forces of aggression. The things men care for, the simple pleasures of hearth and home, work, recreation and human intercourse, have been swept like useless litter into the gutters of regimentation and conscription; and there is, as yet, no guarantee that they will be restored now that hostilities have ceased and the casualties are counted. The time has come, therefore, to examine the ordinance map again, and if possible make good its glaring deficiencies.

It may have been natural that man should seek to examine and understand the nature of the things about him before endeavouring to understand himself and his reactions to his environment. But in doing this he has acquired knowledge without wisdom; and proud of his scientific achievements he has thrown away those ancient religious and ethical props by which life was sustained in its simplicity and ignorance. His eyes were so dazzled by the glare of his scientific discoveries that he could not see where he was going. His hands were so busy with new instruments that he could no longer hold the compass of common sense. His ears were so filled with the noise of his new machines that he could not hear the warnings of his own conscience. Unthinking, he gave his knowledge to the unscrupulous and allowed his inventions to be harnessed to the forces of destruction. And he continued adding to the sum of knowledge for its own sake, but paid no heed to the behaviour of men and nations whose reactions to the impact of applied science were making civilization seem ever more unstable.

Peace plans went lamentably astray after the last war, because, ignorant of the motives underlying human behaviour and the effects of psychological conditioning, the peace-makers sought to accomplish a return to the *status quo*. They juggled with such superficial issues as treaties and indemnities, disarmament and doles. They

will go similarly astray, however well-meaning and serious their intentions, unless some major attempt is made to understand the psychological causes of war and how these less obvious factors may be influenced in the cause of peace. Psychiatry's aid must, therefore, be invoked now. Psychiatric principles must be disseminated as widely as possible. Research must be implemented, and guidance sought for the better understanding of human behaviour in all departments of life. While the physical sciences are putting their laboratories in order for the further understanding of matter, psychiatry must become articulate about the mechanisms of the mind. Only thus may civilization acquire deliverance from the perennial threat of war.

Psychiatry is, in essence, the study of human behaviour. It is the "proper study" of man by man himself. It is connected with all his works and related to all his doings, whether in the council chamber or the closet, the factory or the night-club. It embraces social psychology, which studies the integrations of individuals in groups—the activities of living beings born continually to rub shoulders with other human beings, big and small, dark and fair, clever and stupid, as they form part of the living and changing environmental milieu. There are three main divisions in this environment which come into the purview of the psychiatrist—the physical, the vital and the cultural. Man's reactions to physical objects such as clothes, automobiles and food are no less important than his reactions to the stimuli received from such vital sources as other human beings, whether they are friends or enemies, lovers or loafers. And still equally important are his reactions to the socio-cultural forces of institutions such as religion, law, communism and marriage; and not only the individual's reaction to these things, but the group's reaction must also be recognized.

Psychiatry embraces more than madness. Institutions and ideas have a psychic reality, and in so far as these ideas form part of man's environment, to which he reacts, and which possibly is reacted upon and modified by him, individually or as a group, they form part of the province of psychiatry.

Other social sciences overlap in these provinces. They are concerned with certain objective aspects of the environment in which psychiatry may have but a minor interest; or they may be concerned with similar problems from different angles. Other sciences will be less concerned with environmental factors than with heredity and genetics. Psychiatry will draw on these ancillary sciences, and in doing so may help to coordinate their different contributions, so that greater understanding may come to the central problem of human behaviour.

Lest it be thought that the claims just advanced for psychiatry in the piping time now at hand should be rash beyond reason, it may be well to remember that, in the history of medicine, understanding of the abnormal has generally preceded the study of the normal—that as the study of disease led to the knowledge of normal physiology, so the study of mental abnormality is gradually tending to clarify the mechanisms of normal behaviour. Already psychiatry has gone beyond the bounds of the mental hospital into the arena of daily life, and in a short time its extensions will be far-reaching. With clear concepts of human conduct, and with a technique adjusted to the study of mind both in disease and in health, it will move from the clinic to the school, and from the school to the factory, and finally to the broad study of human relationships in family life, in politics, and in national and international undertakings.

Meanwhile, in order to prepare for these vast and significant expansions, a programme must be laid down—a programme which, while adequate to present requirements, is sufficiently far-sighted and adaptable to the demands of the future. Such a programme will surely encounter great difficulties connected with finance and personnel. It will meet opposition, not only from vested interests, but from many professional groups jealous of any dynamic rivalry. It will be opposed by ignorance and bigotry. It will be hindered by political inertia and foiled by public

distrust, because psychiatry itself is not yet altogether free from the trammels of its unsavoury past.

Evil associations cling, and psychiatry grew out of evil. When medicine emerged from witchcraft, psychiatry stayed with sorcery for several centuries. Mental illness still strikes terror in the minds of many, and lunacy is the work of the devil to many sober and respectable people. But the psychiatrist is gradually living down his unpalatable past, gradually emerging from his isolation and breaking his silence with words of comfort and messages of hope. His own development is proceeding concurrently with the development of his speciality, and when he has mastered the remedies of madness and understood the folly of the human heart, he may effect the redemption of stupidity and point the way to the salvation of society.

#### Psychiatric Casualties.

The initial items in any psychiatric programme for peace are obviously dictated by the psychiatric effects of war upon both combatants and civilians. No one would wish to see any repetition of the grievous mistakes made in the treatment of psychiatric casualties from the last war, and already there are hopeful indications of greater understanding and better treatment of psychiatric service casualties. While war continued, service men and women received more or less competent psychiatric attention with a view to ultimate rehabilitation in civil life. Prophylactically there was better psychiatric screening of recruits than in the last war, and the departments of army psychology played a notable part with the intelligence and vocational testing of troops and trainees.

Admittedly there is room for much improvement in the actual psychiatric treatment undertaken in military hospitals, particularly in the amount of individual attention given to patients by a numerically inadequate and overburdened staff of psychiatrists. The routine and "red tape" of the military setting tend to impose restrictions upon the psychiatrist. Moreover, under the present regime the psychogenic nature of certain complaints is unrecognized by medical officers, and patients with such complaints may therefore not be placed in the care of a psychiatrist, but subjected to the well-intentioned and ingenious treatment of general physicians and surgeons. Occupational therapy is too often just a means of killing time for the convalescing casualty. It frequently does not offer material assistance in his adjustment to civil life. Superficial psychotherapy is responsible for many factitious recoveries among patients who will almost surely break down again when deprived of the security of the military hospital.

These and other flaws are visible in the treatment of the psychiatric casualty, and they are due not so much to any lack of skill or want of understanding on the part of the psychiatrist, as to the constraint of the military machine and the inevitable overburdening of available psychiatrists, and further, be it said, to the fact that the majority of the medical officers, including those in control, are not psychiatrically-minded, and in a psychiatric sense could not tell a crow from a kingfisher.

Inadequate treatment in the military hospital leads to a further neurotic invalidism in civil life and the majority of these uncured subjects, breaking down under the stress of secular adjustments, will inculpate their war service and become incumbent upon medical charity. Governments are still paying out millions of pounds in pensions to those whom psychiatry failed to cure in the last war, and already the lists of psychiatric pensioners from this war are beginning to lengthen.

Apart from those men and women discharged from the services on account of psychiatric difficulties, one may reasonably anticipate a number whose neurotic symptoms will become manifest only when they are thrown upon their own resources after demobilization. Social and economic factors, in addition to domestic responsibilities which proved almost negligible while the subjects were in the services, are likely to precipitate neurotic reactions or reanimate old neurotic defence mechanisms in those who carry a latent predisposition. And many of these, searching



for some explanation for their illness, will rationalize their desires into a belief that it is the result of war service and therefore the responsibility of the State, upon whose bounty they will seek to lean. The bulk of these subjects will require skilled and unremitting psychiatric attention lest they also add their names to the pensions list.

It will not be enough to place them on the register of repatriation out-patient departments, where they may come for a fortnightly interrogation lasting approximately three minutes, during which time they may be blandly told that there is nothing wrong with them, but nevertheless may be given some variety of the ubiquitous barbitol to "soothe the nerves". It will not be enough to pry impartially into their manifest symptoms and leave their complexes undiscovered. It will not be enough to pass them over with promises, and send them for massage one day and radiant heat the next. Such treatment is the veriest quackery and an insult to the intelligence of the patient.

The first item, then, on any psychiatric agenda for peace must be concerned with the provision of adequate treatment for those ex-service men and women whose neuroses persist or become manifest after demobilization. Insistence must be placed upon the word adequate, for hitherto treatment has mostly been inadequate—a mere temporizing and playing about with aches and pains. Adequate treatment implies a serious and consistent endeavour to cure—or, where this is impossible, at least ameliorate—the neurotic state by the exhibition of all the devices of psychiatry.

A known and considerable hindrance to the successful application of any scheme of adequate psychiatric treatment is the persistence of the pension system. The idea of paying monetary compensation for war disabilities became very firmly established after the last war, when sentimental gratitude for sacrifice seemed to cloud the judgement of politicians and military administrators, who formulated ways by which a "reward for illness" could be passed on to those whose disability was deemed to be due to war service. But what disability, physical or mental, can have its value truly expressed in pounds, shillings and pence? The idea is as crude as it is pernicious. For, supposing it was possible to fix a figure for every limb destroyed, every function crippled, who could possibly devise a fair monetary schedule for the neurotic—establish the fee for a fear or settle the bonus for a bellyache? The loss of a limb or a digit is plain enough, and if it is the result of war service, compensation may be roughly adjusted to incapacity. But who can gauge the incapacity of a neurotic whose subjective symptoms are unconsciously conditioned? Who, indeed, knowing that all experience contributed to the organization of the subject can fairly judge the extent to which war service entered into the formation of a neurosis? Yet for more than a quarter of a century pension boards have been doling out fortnightly sums of money as compensation to neurotics who have been able to "prove" their claims.

Two significant facts seem never to have been squarely faced by the pension advocates. The first is that in every neurotic there exists a regressive tendency to become dependent—to shift the burden on to any willing person and to seek security from any likely organization. The second is that while the size of the pension is roughly proportional to the extent of the incapacity, the neurotic will, consciously or unconsciously, make the most of his symptoms. What hope, then, has the psychiatrist of treating a patient in receipt of a pension? What has he to offer that is comparable to the everlasting security of an unearned income?

There should, of course, be no need for the granting of pensions to neurotics, because in theory at least they should all be cured. In practice, however, some, through constitutional defect or instability, are found to be incurable, while others have remained uncured through lack of adequate treatment and the lure of the pension. Pensions, therefore, cannot be abolished altogether; but their granting can be severely curtailed, and the extent of their curtailment depends largely upon the psychiatric facilities that are made available.

As the therapeutic problem is urgent, it can best be met by a complete mobilization of psychiatric services, combining the forces of both existing military and civilian psychiatry. This would appear essential, not only because numerically there are far too few psychiatrists either in the services or in civil practice, but because medical records in military hospitals will need to be made available in those instances in which the neurosis develops after demobilization. Further, the Army Psychology Department has valuable psychometric and historical records of a large number of the men and women in the services, and the psychology personnel, rightly used, would prove an inestimable asset in any psychiatric team chosen to assist in the post-war treatment of neurotics.

It will be necessary to subject the majority of war casualties to some type of psychiatric screening as soon as they enter a military hospital—not because patients with patent neurotic symptoms are liable to be overlooked, but because of the underlying neurotic origin of so many psychosomatic symptoms. The classical neurotic states present little difficulty in diagnosis; but there are many elusive symptoms among the more atypical neuroses which, when complicated by injury or the signs of organic disease, are likely to cause confusion. In such cases, therefore, a wrong diagnosis may be made and incorrect treatment given, and when, at a later date, the basic neurosis becomes apparent, it will in all probability bear the stamp of chronicity. A thorough screening as suggested, by a small but competent team of psychiatrists, would go far to discover and isolate casualties with incipient neuroses, and they would then be the more likely to benefit from early psychotherapy.

The neurotic's problem is an individual problem, and its solution demands individual psychiatric investigation. At the same time the solution may be rendered much easier and may be achieved more quickly if the neurotic is made aware of mental mechanisms, and through self-knowledge is able to understand and appreciate the significance of his symptoms. It is the aim of group psychotherapy to give such instruction in psychology as will help the average patient in handling his everyday difficulties and problems. The discussion of neurotic symptoms in groups assists each patient to attain to an objective (and therefore healthier) attitude to particular symptoms. Interest is aroused, and in the presence of others during an informal discussion, confidence is built up and fears are allayed by reason of the strong suggestive value of group acceptance.

Group psychotherapy is essentially a preparation phase—a time-saving, energy-conserving and suggestive prelude to the individual interviews which are to follow. It is to be recommended as a routine procedure in the clinic treatment of post-war psychoneuroses. Only the general principles of group psychotherapy need be mentioned here. Details will depend on circumstances connected with the material available, with the ingenuity, experience and enthusiasm of the therapist, with the type of patients presenting for treatment and with the nursing staff. Already group psychotherapy has proved its value in in-patient treatment, and variations of procedure and additions, such as group projection methods, have received commendation. In fact, the entire project is open to imaginative elaboration in one way or another, and in the neuropathic hospital becomes easily integrated with occupational therapy, recreation and such social amenities as help to build individual morale and self-confidence.

The treatment of a neurosis does not end in the consulting-room or terminate in the clinic. The technique of somatic and social adaptation is a continuous process, and the neurotic ex-soldier will require vocational guidance and practical help in securing the right type of employment if he is to maintain the improvement he has shown in the clinic. Industry must therefore contribute its quota to the mental hygiene programme of the post-war world—not by dispensing personal charity to a certain number of neurotically handicapped war veterans, but by joining an employment scheme properly set out and conducted by trained almoners and social workers operating in conjunction with the psychiatric and mental hygiene

clinics. This may engender difficulties in quarters where business is sacred to vested interests. It will certainly require legislation, for it may mean the introduction of some drastic changes in industry, in factory management, in trade unionism and in arbitration. But, as the obtaining of suitable employment under salutary conditions is an essential part of the psychiatric programme, ways and means of achieving these ends will need to be worked out in a proper cooperative spirit. Ignorance of what is wanted and why it is wanted is likely to be the main source of opposition. And it will be one of the major items in the post-war psychiatric programme under discussion to introduce mental hygiene principles to factory executives, departmental managers and those concerned in large-scale employment, so that they realize the benefit that will eventually accrue from the acceptance of such principles, not only to their employees, but to themselves. For there can be no doubt that if attention was paid to the understanding of man's inner psychic needs and the personal problems arising therefrom, and that if this understanding was to lead naturally to the adoption of rational and equitable means of satisfying these needs, a great part of the strife which reduces industrial efficiency through frictional discontent would be abolished, with evident gain to the community.

Though the transition may be slow, the trend today is towards socialism. This is obviously favourable to any plan which seeks to aid maladjusted men and women to the attainment of better mental health through suitable employment. Mental hygiene could greatly assist in this social mutation, and by assisting it would be developing its own therapeutic resources.

After six convulsive years of war, in which the suffering and hardship of a large part of the world have been untold, and in which the destruction of life and property has been unprecedented, the time is surely ripe for reconstruction—not only of buildings and institutions, but of the ethical outlook of those who remain to gather up the wreckage and build again. If sorrow has purged the heart of its greed, and if suffering has banished the hate which kept men apart, then is the way open for a better understanding and a closer unity between man and his fellowmen, and mental hygiene has this golden opportunity of opening the door to a saner outlook and a wiser way of living. If it can, by simple teaching and resolute persuasion, put cooperation in the place of competition, give a higher direction to the acquisitive instincts and make faith stronger than fear, then will the problems of the psychiatrist be simplified and his therapeutic triumphs many times multiplied.

#### Civilian Psychoneurotics.

Clothes may make the man—but not the neurotic. His troubles go deeper than his vestments, and uniform or civil apparel makes little ultimate difference to the outcome of repressive forces inimical to healthy psychosexual development in childhood.

The immediate future is already set with the neurotic problems of ex-servicemen, and in a like manner will extensive demands be made upon the existing psychiatric services in the community by those whose minds have been disturbed merely by the distant echoes of war's alarms. Neurotic invalids are recruited from the emotionally unstable, whose minds lack that balance and congruity of attitude and endeavour which characterize normal behaviour. As such they are susceptible to the forces of social and economic change and will break down in the days to come when their situations are straightened by adversity and the pressure of necessity is upon them. Constrained by internal conflicts, and lacking the adaptability which is the natural safeguard against perplexity, they take refuge in illness and claim compassion for the distress which renders them helpless.

The treatment of civilian psychoneurotics differs in no essential way from that of the military neurotic. The therapeutic aim—rehabilitation and adjustment to the demands of civil life—is the same, and similar difficulties in achieving this aim are encountered, the chief of which

is the lure of dependence created by the pension. The difference here, however, is that whereas the State is prepared to accept some share of responsibility for the genuine war neurosis—which in the past it has often been only too willing to discharge by the granting of a pension—it discounts all liability in the production of a civil neurosis and will yield only to the ultimate demand of charity when the neurosis becomes chronic and totally incapacitating. This attitude may seem incongruous, since the State may be as much to blame for the social and economic shortcomings of peace as it is for the hazards and hardships of the war which it supports, and in which it engages its available manpower. This may seem an unduly biased attitude, in view of the meagre facilities for psychotherapy which the State offers to its neurotically afflicted. It will, therefore, be among the more urgent tasks of mental hygiene not to plead for more generous pensions, under which the weary and dispirited may shelter, but to make known the ravages of neuroticism and to emphasize the State's responsibility to provide extensive facilities for treatment.

The immediate need is to enlarge the scope of existing clinics for the treatment of psychiatric disorders. The majority of these are out-patient clinics attached to the various public hospitals. Fortunately placed as these clinics are, as units in comprehensive medical and surgical centres, many of them are saddled with the disadvantage of having no in-patient facilities. This means considerable curtailment of their work and usefulness. It means that certain well-recognized and valuable forms of treatment must be withheld from patients whose circumstances compel their attendance at these out-patient clinics. To make an occasional bed available in the medical wards of the hospital is unsatisfactory. Many psychiatric patients are unsuitable for the general wards; their requirements cannot be met by the ordinary nursing staff; and the privacy required for narco-analysis, continuous narcosis and electro-convulsion therapy is not readily available. Depressed patients and those who must be guarded against attempted suicide require special types of ward and single-room accommodation; and there are many such patients for whom a receiving house is unsuitable.

A further drawback to the existing out-patient psychiatric clinic is its tendency to become clogged with useless derelicts. These include chronic epileptics and those pathetic sufferers from the post-encephalitic syndrome who come regularly for medicinal relief, and senile demented and gross mental defectives whose relatives refuse to have them certified insane and cling hopelessly to the belief that a bottle of medicine may help; there are the general run of waifs and strays wanting certificates and pensioners injured to the drug habit through years of charitable medication; but the largest proportion of all the derelicts is that of the neurotics whose neuroses have become chronic in other medical clinics at the hands of overworked physicians; these physicians have regarded their symptoms as indicating some organic disease, which they have proceeded to investigate by the known tests of biochemistry and the devices of radiology, and then endeavoured to treat with the resources of the entire pharmacopœia.

Patients with physical conversion symptoms are harboured in all public hospital out-patient clinics, from which, by slow degrees, in their failure to respond to symptomatic treatment and with a growing arcana of neuroticism about them, they gravitate to the psychiatric clinic, too chronically affected to be cured, too ill to be ignored. To this haven of hopeful sympathy they come with a fortnightly change of symptoms, in expectation of a kind word or a new pill, to swell the ranks of the neurotically disinherited upon whom the psychiatrist must spend his time in vain.

Medicine moves in a mysterious way and performs wonders unaware; but the rehabilitation of the neurotic is seldom wrought by tonics and tablets. It is one of the aspirations of mental hygiene so to illuminate medical teaching in the future that physicians will quickly recognize the cloven hoof of the neurotic stamped on the pattern of his conflicting signs and symptoms, and will not delay



the diagnosis nor temporize with speculative treatment and then expect the psychiatrist, as if by magic, to unloose the bands of chronicity they have so unwittingly tied.

The urgent reorganization of the out-patient psychiatric clinic demands a larger trained staff, including at least one psychologist, psychometrist, almoner and social worker. Just as the mind cannot be separated from the body, neither can the patient be separated from his environment, and the problems presented to the psychiatrist frequently demand an investigation of the family and its background, the school the patient may attend or the place in which he may work. Without the full-time services of an almoner and social worker the psychiatrist is like a bricklayer trying to work with his arm in a sling. And without some competent secretarial assistance in charge of case-histories, indexing, appointments and reports, he is like a one-armed bricklayer forced to do his own hod-carrying.

The ambit of the psychiatrist is continually being enlarged as fresh social problems arise to tease the mental resources and strain the adaptability of the citizen. Post-war psychiatry will need to concern itself more with aspects of delinquency, and will be required to work in closer association than at present with the law courts and social services. Work in these fields will be impossible unless it is undertaken by a team in which the almoner and social worker may act as liaison officers. Psychiatry cannot work in isolation. It must link up with the social services that are at present functioning. To them it has contributions to make which cannot be rightly ignored, while they have facilities to offer of cardinal value to psychiatry.

No man can work with worn-out tools, and none can achieve efficiency with antiquated methods. The changes and expansions of the out-patients' psychiatric clinic are already overdue. The present clinics as they were constituted a quarter of a century ago have served their purpose and have now ceased to function efficiently. They are not capable of properly handling more than a quarter of the work that should come their way. They are only touching the surface of the many problems presented; they are unable to descend to the deeper levels, where so much human material is wasting in incapacity and depression for the guidance and rehabilitation which a properly organized psychiatric service should give. A change must come. The increased neuroticism of the post-war period will demand it. The people themselves will clamour for it. Its attainment will be among mental hygiene's targets for tomorrow.

#### The Mental Hospital.

Psychiatry was suckled and schooled in the mental hospital, which, with all its defects, is still the chief graduation centre for most modern practitioners of psychiatry. Nevertheless, the mental hospital remains a thing apart, an isolated microcosm in the vast arena of general medical practice and teaching. Its hidden clinical resources have scarcely been tapped; the scope for therapeutic endeavour is almost unlimited; while year after year the records gather and are laid away in the archives of its walled fastness.

Now, surely, is the time come to correct many of the defects of the mental hospitals—to open up and exploit their resources—to bring them into line with general medicine, and to destroy the isolation in which they have existed to their own detriment. If the mental hospital is to function as a hospital, that is, a place in which the mentally ill may receive treatment and medical students and graduates may receive instruction in psychiatry—it will need to be something more than an asylum—something better than a sanctuary for the senile and demented. It is true that as a barricaded refuge for the witless and alienated of former days the old asylums served a great need and often accomplished fine humanitarian work. In the pre-treatment era mental hospital administration sometimes reached a high standard in its custodial endeavours. But of late years this has declined; gardens and workshops have suffered neglect; overcrowding has been permitted, and treatment, sporadically encouraged and by lack of

enthusiasm condemned, has not served to counteract the evident decline in the general management and comfort of the patients. The result has been to produce a type of institution that is neither a mental hospital nor an asylum, but an unpleasant combination of both, where patients hoary with hopelessness rub shoulders with the recently admitted, where one of the newer forms of treatment is relegated to a curtained-off corner of an "acute" ward, or banished to the twilight recesses of an infirmary where the soap and the shaving gear are cupboarded in the sterilizer and the tobacco is lodged with the toilet paper.

For many years governments have accepted this hybrid type of institution, increasing its inappropriateness by the near-sighted policy of adding a wing here or an annexe there, or tampering with the internal architecture to meet the demands of a passing emergency. Little money has been outlaid on equipment, and little attempt has been made to attract the more enterprising and enthusiastic of the younger medical graduates to positions within the mental hospital service. The routine medical work is dull and stultifying, calling for no greater medical skill than is required to pass a nasal tube or prescribe a gargle, and demanding no more surgical ability than might be displayed in strapping a chest or tapping a hydrocele. It is unattractive, because clinical teaching is not organized and clinical investigation is neither encouraged nor facilitated. The medical officer walks through his wards with a hurried glance at several hundred disinterested patients while the medical superintendent sits in his office immersed in the domestic problems of the institution, which may range from a breakdown in the laundry to the price of seed potatoes.

The first and most urgent problem for disposal is that of overcrowding, which prevents the proper classification and segregation of patients. This demands the building of new hospitals, planned so that senile and pre-senile patients can receive adequate custodial and medical care in infirmary wards, and so that epileptics may be segregated and mental defectives housed in suitable colonies. Once the reception and treatment wards can be guaranteed to be kept free from the senile and chronically affected patients, it should be possible with an adequate clinical team to exploit the full resources of psychiatry for the benefit of recently affected and recoverable patients.

A substantial percentage of patients is discharged from the mental hospital only to be returned again some weeks or months later. This often means that the job of curing the patient has been only half done. It means that the cure begun in hospital has been neglected in the community, and the reason for the community's failure lies more in ignorance than in indifference. It is generally due to the crass ignorance of the nature of mental sickness on the part of those with whom the patient is brought in contact. For the patient must not only be enabled to readjust himself to the simple, protective surroundings of the hospital; he must be so equipped in his newly-recovered mental resources that he can surmount difficulties in the home, the office, the factory and the church.

Mental illness is frequently the expression of a conflict between the personality and the environment. Much as the personality may be modified and reshaped and strengthened, it may also be necessary to modify the environment. This calls for trained social workers, as well as for knowledge and sympathy among the so-called normal members of the community. The social worker deals with difficulties in the environment, following the patient from the hospital into the home and taking up the treatment at the point at which the psychiatrist finished. The social worker may function equally usefully at the beginning of a mental illness by furnishing a social inventory of the patient for the use of the psychiatrist. The mental hospital, therefore, that is not equipped with the requisite number of social workers is failing in its duty not only to the individual patients but to the community at large.

The time has come when the mental hospital must open its professional doors for out-patient guidance and treatment. For not only should the recently discharged patient

be encouraged to report periodically back to the hospital for advice and examination, but similar facilities should be available to the relatives of such patients, who would have the opportunity to become better equipped to help the recovered patient. The establishment of such a clinic would, among other things, prove to be a strong factor in establishing increased confidence in the mental hospital.

Almost the whole administrative weight of the mental hospital now falls upon the shoulders of the medical superintendent, so that the general "tone" of the hospital, the quality of the medical treatment, the contentment of the staff and the comfort of the patients depend upon the industry and personal attributes of this one person.

Whether he should assume the role of clinical director and delegate his non-medical duties to a manager is a matter of opinion. It is possible that the clinical director should be chosen from among the medical officers on account of some special aptitudes displayed or organizing ability demonstrated. More medical officers are required, and specialists in other departments must be co-opted into the clinical team. This will be possible only if the medical officer's job is made more attractive. And it is not pay alone which attracts the young graduate to the domain of psychiatry, but the prospect of doing interesting clinical work and receiving valuable clinical instruction. To further his enthusiasm arrangements should be made to allow him to undertake some part-time work in a general hospital or assist in one of the psychiatric clinics; if this is done, the medical officer is enabled to command the respect of his colleagues in general medicine, and the isolation of the mental hospital, so detrimental to its correct functioning in the community, will tend to be abolished.

Only by breaking down this geographical and intellectual isolation of the mental hospital can its standard be raised. Only by a firm alliance with general medicine can psychiatry become articulate in the community. Psychiatry in the past—by other name as odious—has been regarded as concerned with the surreptitious treatment of a shameful malady; but now that its therapeutic triumphs are known to be connected with honest illness, the time for shame and secrecy is passed, and psychiatry must be publicized—not blatantly, but truthfully, so that the community may take full advantage of its therapeutic and prophylactic possibilities. Institutional psychiatry is overburdened and understaffed; it is unable to utilize its potentialities; and until its grievances are voiced in high places and the world is told of the handicaps and restrictions under which it labours, it will remain largely stagnant and inefficient.

Institutional psychiatry needs leadership. It needs men of long training and intimate understanding of mental hygiene problems to come down from their ivory towers and place their knowledge at the service of the people. The people are hungry for this knowledge and would be found willing to cooperate in almost any undertaking for the better care and treatment of the mentally afflicted. Psychiatry needs men who are willing to sacrifice, if need be, the security of their institutional positions in order to crusade against ignorance and apathy in matters pertaining to the mental health of the patient and the community. Too long have such men in charge of mental institutions been content to sit down under departmental ineptitude and government neglect, watching their opportunities slip by without protest, or allowing their enthusiasm to evaporate in obtaining a succession of sterile promises. Too long has their ambition been foiled by the necessity of waiting to step into dead men's shoes in order to climb the few steps that lead to superannuated ease.

The post-war mental hospital must be a community psychiatric centre, open to inspection and to criticism, and functioning as an integral part of the national health service. It must establish intimate contact with other community hospitals, teaching hospitals and the medical school by giving employment to medical graduates who themselves hold general hospital appointments. It must throw open its doors to specialists in other fields and encourage research in conjunction with other faculties. It must seek to attract men and women of ability, who

will use their spare time to reach out after knowledge in the cognate branches of medicine and the humanities, so that in their study of mental disorder they will gain a wider orientation and a deeper insight into all the peculiarities of human behaviour.

#### Mental Hygiene.

The recent war has had little effect in increasing the incidence of major mental disorders in the civil population. Statistics show but a slight increase. But the emotional upheaval incidental to the global conflict has cast adrift an enormous number of people who, prior to the outbreak of hostilities, were clinging precariously to some apparent stability. The potentially unstable have become unstabilized and their problem is serious.

Apart from civil adjustment difficulties experienced by demobilized members of the services and returning prisoners of war, a percentage of whom present major psychiatric problems, apart also from the known psychiatric casualties of war, there are many men and women of today facing an uncertain future with an inadequate mental equipment. There is a crying need among these people for greater psychological self-knowledge. Many are intellectually bewildered. Being emotionally unstable, they are unable to control their reactions, and are subconsciously seeking ways of escape and finding dubious shelter in neuroticism. Men and women who, for the first time in their lives, under the pressure of necessity, have experienced rationing and regimentation, bereavement and insecurity, whose sense of values has been shattered, are drifting aimlessly along in the eddies and currents of the contemporary stream. Dissatisfied men and frustrated women, lacking the mental freedom to be free, seeking an outlet in avarice, in petty squabbles, in overwork or in heedless pleasure; men and women with no guiding philosophy, no stimulating faith, no common bond of mutual trust and friendship, reaching out after shadows and growing sick at the treadmill of unsatisfying labour, mating and reproducing in blind biological obedience; these are the people from whom the vast army of the neurotic and disaffected is recruited. They march through the thicket of modern life on the beaten track of industry, which for the majority means making a living, and, for the minority, making money. These are the two dismal incentives which guide the unwilling footsteps of modern man. To earn a living means to experience security; to make money means to gain power. And to do either it is necessary to bow down to the despotism of modern techniques.

The great mass of people who sell their labour in the capitalist markets of today are the half-educated products of an acquisitive society eager for profit. Of these, many are potentially neurotic, owing in part to hereditary factors and to bad psychological conditioning in the early, formative years. Some have physical defects which alter their psychological perspectives. Others develop psychosomatic complaints as a result of mental conflict and frustration. The troubles of many are intensified by unconscious forces, by ignorance and by the false notions that prevail in matters of sex and disease. Many are constitutionally unable to meet the demands of industry and become antisocial or dependent. Failure to become adapted to the needs of social life may lead to alcoholism or drug addiction, or may be expressed in illness or that neurotic incapacity for which medicine has no mithridate.

In the post-war world of the present day psychiatry has a vastly extended scope. Concerned with the treatment of frank mental disorder, it has a firmly established place in the care and treatment of those whose mental alienation requires segregation from the community. It has a considerably wider arena for the diagnosis and treatment of those afflictions which are of a neurotic nature. It must now concern itself with the mild, atypical and borderline disorders presented by those whose frail stability has been shaken by the impact of war. Its interest must be extended into the domain of ethics and sociology, pedagogy and delinquency, to find and ameliorate the conditions which give rise to mental ill-health. And, above all, circumstances demand that psychiatry shall



take a hand in guiding human destiny by concerning itself not only with the "abnormal mind in normal times but the normal mind in abnormal times".

When, in by-gone days, the gutters ran with filth, and the household garbage was left to rot in the streets and breed maggots in the sun; when the contents of the family midden seeped into the drinking wells, and typhoid fever took its unhalloved toll, and plague, deadliest of all diseases, periodically stalked through the towns and villages of the Old World, it became necessary to introduce public health measures—to teach people the value of physical cleanliness, the virtue of fresh air and sunlight. Legislation was necessary to enforce elementary health principles, and people were compelled, in the interests of others, to observe some semblance of personal cleanliness and to cooperate in sanitary undertakings. It was a hard fight—against ignorance, bigotry and vested interests; but in the end many of the old evils were eradicated and many preventable diseases were placed under control. Cloacina triumphed over sickness and stupidity, and gave a new charter to the health of mankind.

Likewise, at the present day, it is necessary to inculcate in the community the principles of mental health. Small-pox and typhus are under control; but mania, melancholia and schizophrenia continue to ravage the minds of many. Our gutters and cesspools are under hygienic scrutiny but our minds are unregenerate and unclean. Often they are stale and unventilated—obscured in the darkness of doubt and delusion; our emotions are frequently undisciplined, our thinking is crooked and deceitful and our actions are capricious and harmful. Many men's minds are clogged with useless lumber and unreceptive to new ideas; many are warped with unresolved conflicts, scarred by psychic traumata or blemished with unnatural repressions. In minds thus perverted the springs of action are polluted, and men suffer in the reflections of bodily dyscrasia or are led into folly with their eyes open.

Man in the past has sought to save himself from physical calamity, to dodge disease and prevent accidents. He has imposed upon himself certain rules of conduct in order to control epidemic illness; he has invoked medical aid in order to remain healthy and enjoy himself. He has become aware of the virulence of bacteria; the disorders of malnutrition and the dangers of contagion. But, in the application of this learning, he has bettered his body to the neglect of his mind. He has cleansed his house without setting it in order; and the result is that though he lives longer, his life is the more fraught with mischief and galled by desultory distress. For not the rules of quarantine, not the devices of sanitation nor all the injectable vaccines of public health, have been able to banish or in any degree to mollify the mental afflictions of mankind.

The unthinking will say that mental hospitals are provided for the care of the mentally afflicted, believing in their ignorance that the matter is thus adequately disposed of, and continuing to shut their eyes to the increasing evidence of neuroticism about them. But the matter cannot be left to rest with the unthinking. The psychiatrist is called upon to crusade against the germs and pests of the mind—ignorance, fears and emotional distortions, and the conditions which bring them about. He must concern himself with emotional hazards in the home, with behaviour problems in the kindergarten, with educational misfits and industrial misplacements, with economic insecurity and with the problems of dependency and delinquency. And because mental hygiene is the psychiatry of common sense he must ultimately join hands with those whose concern is still vested in the physical problems of man's environment, making his work complementary to that which rescued man from the first gross consequences of ignorance and folly.

Mental hygiene aims to call attention to the psychological factors responsible for ill-health, and to advance a preventive strategy acceptable to such as will cooperate in its application. Its teaching is based on the assumption that knowledge of the underlying mechanisms of human

behaviour may be utilized to modify that behaviour so that many forms of mental distress may be prevented, mental handicaps may be overcome, and illness—which is likely to assume physically incapacitating features may be forestalled. It further assumes that in this prophylactic aspect it aids personality development by the removal of barriers and the cultivation of desirable habits and useful accomplishments. It seeks to modify mistaken attitudes and to simplify those interpersonal relationships which form the warp and woof of every society. It strikes at the vulnerable and works on the accessible factors in the "total situation" of the individual, removing or ameliorating, according to the circumstances, both the clearly proved causes and the presumptive causes of mental disorder. And by the widening of the sphere of presumptive causes, its prophylactic intent may be made to cover the whole gamut of behaviour problems, from the simple tantrum of the child to the symbolic crime of the adult. All the minor mental and emotional deviations, the petty jealousies and suspicions, anxiety and hysterical states and those disabling personal characteristics which may result from faulty upbringing, are therefore seen to come into the province of preventive psychiatry.

Being father to the man, the child must become a major concern to post-war psychiatry, and to ensure the child the benefit of a good descent, mental hygiene must join with eugenics in tackling the problems of sex-adjustment in marriage. It must find a place in the ante-natal clinic, in the maternity hospital, the baby-health centre and the nursery school. The parent is the child's first teacher, and may through ignorance do irreparable damage to the child's mind by sewing the seeds of faulty habit reactions.

In fostering the development of intellectual and emotional maturity in the young child and the growing adolescent, education and psychiatry have similar aims. The school should provide the optimum conditions for the growth of the child's personality. It should be a cultural centre—not a prison-house with chalk and blackboard, where children are, under the guise of education, indoctrinated with middle-class ideas and given a narrow nationalistic bias. There is no philosophy of education worthy of the name unless it is based upon the understanding of the child's needs; nor is there any valid technique of teaching unless it is built upon the same understanding. Teaching is an honourable profession, the importance of which cannot be exaggerated, and the status of the teacher must be elevated. Parent-teacher relationships must be increasingly fostered, and psychiatry given greater scope in the handling of "problem" children. A concerted effort on the part of all interested in child development is needed to check that widespread and shameful exploitation of children by the capitalist purveyors of entertainment by radio, cinema and comic strip, for this insidious and harmful exploitation undermines the work of both psychiatrist and teacher, who, each in his own way, is endeavouring to make the child less childish.

Industrial mental hygiene is the natural corollary to the factory legislation, which, however tardily, has helped to ensure healthier conditions for the workers. It is the key to production efficiency; for, not only may it help to stem the tide of industrial discontent which arbitration alone can do little to check, but in the straightening out of the emotional difficulties of individual troublemakers and in aiding the selection of employees for promotion, it may help to engender that happiness in employment which is the basis of health. It must be obvious that in dealing with the minor personality handicaps in matters of industrial placement and in endeavouring to solve such individual problems as may be concerned with domestic maladjustments carried over to the factory or with conflicts arising out of the job itself, the industrial psychiatrist is not there to coddle the workers. He is not a mere psychiatric synonym for a nursemaid. Nor is he employed to throw rhetorical dust in their eyes so that they may think they are living in a bed of roses. He is there to simplify and smoothe out the difficulties to interpersonal relationships; to stimulate incentive through interest; to prevent incapacity through maladjustment. His task at first will be doubly difficult because of the attitude to labour

inherent in modern industry, in which the worker is often no more than a "hand" engaged in some depressingly repetitive job or idly tending an automatic machine. But it is not impossible to visualize a time when industry will be forced to become psychiatrically minded, and, understanding the mental hygiene requirements of its employees, will seek to provide them.

It is well known that work is a potent therapeutic agent. He who is mentally disturbed may find that "toil becomes the solace of his woes". This applies to the demobilized soldier, whose war service has unsettled him, and who finds himself maladjusted in civil life. But the work he is offered must be of a kind that can capture his interest and enthusiasm. He must make a vocational adjustment. The conditions surrounding this work must be propitious also. To achieve harmony between a demobilized man and his job is therefore one of the first tasks of mental hygiene.

If mental hygiene is to play the constructive role in post-war society which common sense dictates, then there must be closer cooperation between the family physician and the psychiatrist. Medical education will need modification so that the medical student can learn the elements of psychopathology side by side with organic pathology, and clinical medicine can be taught with due regard to the personal idiosyncrasies, emotional difficulties and maladjustments of the patient whose symptoms are manifestly organic. The medical graduate must be given a broader understanding of the part played by mental factors in both health and disease. He must be encouraged and taught to discern the social factors which lie behind the clinical symptoms in many ailments, to see the patient as a unit within the family group with its particular emotional cross-currents. Knowledge must be substituted for the shibboleths of sex, and the doctor correctly orientated in the psychological approach to anti-social behaviour. He must become familiar with the role psychiatry should play in paediatrics. In short, he must be able to meet and tend his patients as individuals in difficulty—not merely as isolated lumps of debased mechanism.

The family as "the cradle of democracy" must be brought into line also. It must become "mental-hygiene-minded", must know and want to know how to get the best out of mental hygiene, and must participate as a family in the mental hygiene movement. Members of the family must, through the influence of mental hygiene, come to take an active part in community culture, using such resources as may be at hand. If this is done, the isolated psychiatric interview will soon give place to guidance which is more valuable because it is shared, and because the aims of individuals are more firmly knitted together by the common precepts of mental hygiene. Then, perhaps may child rearing cease to be "a mass of polypragmatic agitations", adolescence cease to be a pimple-scared retreat from the bugaboo of sex, and adulthood cease to be a crazy acceptance of advertised medical quackeries.

Psychiatry remains a claustrophobic speciality, until as mental hygiene it invades the sick society. For it to do this, it is necessary for psychiatrists, realizing the community's urgent need, to band themselves together in a body and make their presence felt. The older countries—notably America—have had their national hygiene councils, and the younger countries, faced with pressing post-war problems, must do likewise. Such councils form the nuclei of the community's efforts to introduce and enforce mental hygiene principles into daily life. To function effectively they must have the active cooperation of general medical practitioners, paediatricians, psychologists, school teachers, clergymen, trained nurses and the social agencies. Government recognition and subsidy are equally essential. To gain these ends it is necessary to have strong leadership and to reach and educate the public in the widest possible manner.

Like all reforms, the introduction of mental hygiene to the community presents many difficulties. Psychiatrists themselves at the present time are so inundated with work that they have little time for meetings and little energy to spare for the purpose of organization. The public is as

yet not persuaded of the value of mental hygiene. It still mistrusts the word "mental" because of its association with the dreaded word "lunacy". It is still over-cautious in its attitude to the psychiatrist. It is inclined to resent not only his interference but his tendency to pry into its individual secrets. The public little knows and scarcely guesses the prophylactic value of psychiatry, and still tending to regard mental illness as something shameful, it shuns the psychiatrist and scouts the very idea that the so-called "nervous" troubles are mental in origin.

The psychiatrists themselves must break down the public's prejudice by recourse to the well-tried weapon of propaganda. During the war, especially in the training and education of the services, extensive use was made of this agent, particularly in the United States; and it is still in use in that country in the training and rehabilitation of demobilized veterans. Films, lectures and radio programmes may all be utilized in bringing before the public the value of mental hygiene. Many of the films shown to servicemen dealing with neuroses, vocational guidance and the psychological aspects of illness would be suitable for adult exhibition in public.

Psychiatrists must become militant. They must raise their voices and organize themselves in the crusade for mental health. Those who have seen psychiatric service in the forces must, on returning to civil life, lend the weight of their experience and the inspiration of their ordeal.

#### Envoy.

What has psychiatry to do with peace? Simply this: that without its aid there can be no peace. Without mental hygiene, developed and disseminated throughout the length and breadth of every community, there can be no hope of preserving a stable and lasting peace—no hope of averting the cyclic convulsions of war. Without some appreciative understanding of the frustrations and aggressions inherent in human beings in a capitalist-industrial world there can be no guidance, no therapy and no outlet but in war. Without preventive psychiatry the masses will continue to become inflamed with hatred and, heedless of self-sacrifice, hurl themselves periodically to destruction. They will continue to be led by catch-words, beguiled by specious motives and hoodwinked by the high-sounding mendacity of their party leaders, for the soul of man is poked and needs a remedy.

History teaches us that in pre-sanitation days epidemic disease on many occasions destroyed whole populations to the verge of extinction. Medical science and sanitation have rendered us free from the risk of such a catastrophe. But mankind is now menaced by destructive tendencies far more subtle. These tendencies lie in the fundamental irrationality of the human mind, which harbours injurious instincts side by side with self-inhibiting impulses, which may be turned to the task of human deliverance.

It is necessary to remember that we are living in a sick world, at a time when, sanity itself seems strange and remote. We are largely without insight into the causes of this sickness. War did not cause it. War is only one of its more drastic results, and one which has increased rather than lessened the corruption.

Do not, then, let us deceive ourselves, because the clock ticks and the flowers grow and the clouds disappear after the rain, that all is well save for a few invalids, whom we charitably put away, and a few accidents that are inevitable. Do not let us, with ostrich obtuseness, bury our heads in the sands of physics and chemistry, exulting in such discoveries as penicillin and the sulphonamides, and think that because we can heal the flesh we can neglect the mind. The world is sick in body and mind, and the latter is worse than the former, because it is more insidious.

This is not a job for the politicians. They have tried and failed—miserably. Their tactics, based on conscious level reactions and outmoded demagogic principles, are dangerous. Modern democratic society is composed of people who have achieved varying degrees of emotional maturity, and people who have, in spite of their years, remained more or less emotionally immature, and others again whose emotional equilibrium is unstable. These—the



majority of modern men and women—have been compelled to sacrifice individual freedom to a greater or lesser extent by their submission to the restrictions of contemporary cultural patterns. And of these a large percentage are the pawns of labour—the minders and tenders of machinery—who in the distractions of the betting-ring, the cinematograph and the public house seek a fleeting respite from the frustration and monotony of their inhuman toil. Life is mean and sordid for those who labour merely to produce dividends for shareholders and who measure their reward in terms of the basic wage. There is a measure of sanitation and physical comfort in their homes and of stereotyped distraction for their leisure hours. But they remain mentally degraded, for the things of the spirit are out of reach and the meaning of life is obscured.

The politician continues to canvass his votes and to legislate in the interests of his party; but he is powerless to raise mankind out of the slough of discontent, and is steadily losing the trust and esteem of his electors. His money-tainted schemes are the veriest palliatives, in no way capable of promoting mental health or increasing contentment. His subsidies and tariffs, boards and commissions are the merest tinkering of a quack doctor. He cannot expedite the achievement of health, because he himself is unhealthy and is not reliably advised. Community hospitals and free medicine do not constitute a solution to the problem of human happiness and agreeable living, and free beer and entertainment, if contemplated politically, would be an equally futile solution. The politician plays with the skittles of organization and regimentation, but can introduce neither sanity nor security into daily living, for no politically planned economy can alter the emotional stringency of the ignorant present or make man more rational in his dealings in a hate-infested world. What vaunted political liberties, indeed, can unfasten the strait-jacket of man's super-ego, or release in innocuous ways his pent-up and corroding aggressions?

There is at present a crying need for the psychological study of man's motives and his reactions to contemporary events. Impulse and prejudice, which so often govern his actions, are but little understood. Lying, for the most part, below the level of conscious recognition, they have hitherto escaped notice. Yet without a comprehensive understanding of the mainsprings of human behaviour, it is impossible to lay the foundation for good government and so prevent that perversion of human instincts which becomes manifest in war and destruction.

It would be futile to suggest that the government of a country should be vested in a committee of psychiatrists; but it is seriously recommended that the psychiatrist can and should teach the politicians something about the psychological nature of man and the psychological origin of his difficulties—that mankind generally would benefit from a clearer understanding of the motives which govern conduct and the emotional conflicts which hamper mental development. Nay, more, that diffusion of mental hygiene principles and the opportunity to profit by mental hygiene teaching are essential to modern society, as were public health legislation and teaching in days gone by; for by these alone may the ideal of a sane mind in a healthy body be approached by mankind.

Man is a menace to the civilization he represents, and will continue in this role to his everlasting shame and peril unless he is rescued by such mental restoratives as psychiatry may discover. His immature mind, which now demands the support of mass movements and evangelical drives, which seeks the succour of infantile distractions and authoritarian command, is subject to contagious creeds and vulnerable to perilous suggestions. He is the hapless victim of his unmeasured and unchronicled impulses, and life for him must remain a quiet desperation punctuated by such flashes of hope and tragedy as circumstances can contrive, unless he voluntarily cooperates with those who can give him some psychological immunity and aid the development of greater mental resistance.

Psychiatry is not yet in a position to work miracles. It is still forced to rely partly upon scientific theory and

partly upon the method of interpretative inference. To translate blueprints into facts will require time. In the same way that jigs and new tools had to be designed and made before aeroplanes and tanks could be mass-produced for war, so time and inventiveness must be set aside for the creation and testing of new techniques for the teaching and conditioning of the masses for peace. This may have to be extended over several decades.

Any expenditure of money and energy that permits the expansion of mental health will not only decrease the larger expenditure that would be involved in rectifying the mistakes of the future, but is most likely to ensure freedom from any future calamity of unrestrained aggression.

The crux of Nazi indoctrination was an "education for death", with the tragic result that, in the over-blown fullness of their national pride, the Nazis brought death to those in other countries who had been educated for neither death nor life, but for mere existence. The people who have survived the holocaust now insist on something more than education for existence—the slave-like subsistence of the under-privileged. They demand nothing less than "education for life". This type of education transcends literacy. It does not mean more algebra and higher physics, but education in delight and appreciation—teaching based on psychological requirements rather than on practical or preconceived notions, education that sharpens awareness and the understanding of human nature in all its distortions and difficulties, that will afford solace and encouragement in the face of despair and cloak "the shameful nakedness of pain".

In dealing directly with the emotional and social life of men, psychiatry reveals men's needs as something more than "bread and circuses", something more than some ever-changing crazy distraction to narcotize the frustrated mind. Psychiatry in its widest sense helps men to taste delight in their daily bread, to experience the wonder of daybreak and nightfall, to know contentment and appreciate the holiness which belongs to beauty.

#### A RADIOGRAPHIC ANALYSIS OF SPONDYLOLISTHESIS.<sup>1</sup>

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SPONDYLOLISTHESIS refers to a slipped vertebral body in the lumbar region due to defective development of the neural arch. The underlying defect is situated in the so-called *pars interarticularis* between the superior and inferior articular processes. The aetiology of this defect is definitely known. It may be due either to (1) trauma very early in life, perhaps even at the time of birth, or to (2) developmental lack of ossification in this narrow segment. In either event, trauma in later life may be superimposed and serve to aggravate the condition.

An attempt should be made to demonstrate the defect in every suspected case of spondylolisthesis. Usually, only a suggestion of the defect can be obtained from the X-ray films taken in the antero-posterior position. When the defect is bilateral, it can usually be detected in the lateral view. However, the defect is most accurately seen in the oblique antero-posterior view, with the body tilted to an angle of 45°. The *pars interarticularis* of the side that is closest to the film is shown clearly. Occasionally, when there is considerable separation at the site of the defect, the superior articular process of the vertebra below will be projected upward into the defect.

In the first six months of operation of a United States Army hospital in a tropical area, in 520 examinations of the lumbo-sacral portion of the spine, 11.7% of the spines examined were found to contain defects of the *pars*

<sup>1</sup> Read at a meeting of the Section of Radiology of the Victorian Branch of the British Medical Association on January 26, 1945.

*interarticularis* in a lumbar vertebra (with the exception of one case, in which the twelfth dorsal vertebra was involved). In two-thirds of these cases the defect was bilateral. In view of this relatively high incidence, it became imperative to evaluate the finding as well as possible radiographically. An accurate method of detection of slipping of the vertebral body, of measurement of the degree of slipping, and of testing the stability of the vertebral body was developed.

#### Mechanism of Spondylolisthesis.

In the presence of bilateral defects of the *pars interarticularis*, the neural arch becomes separated. The anterior segment consists of the vertebral body, the pedicles, and the superior articular processes; the posterior segment consists of the inferior articular process, the remaining portions of the laminae, and the spinous process. There is no longer any bony fixation of the inferior part of the vertebral body, and if the ligamentous support becomes stretched, the inferior part of the vertebral body moves forward in the arc of a circle, with the superior apophyseal joint acting as a pivot. The usual type of displacement is, therefore, in the arc of a circle (Figure 1).

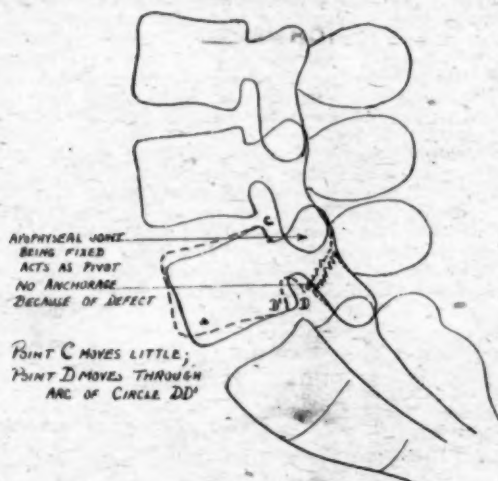


FIGURE 1.

Diagram to illustrate the usual mechanism of spondylolisthesis, showing that, unless the capsule of the superior apophyseal joint is stretched, the movement of the slipping vertebral body is through the arc of a circle. The apophyseal joint, being fixed, acts as a pivot; there is no anchorage because of the defect. Point C moves little; point D moves through the arc of a circle DD'.

More rarely, when the capsule of the superior apophyseal joint becomes stretched, the upper part of the vertebral body will also slip forward, in which case the displacement of the vertebral body is linear rather than angular.

Occasionally, the stress upon the paravertebral ligaments becomes manifest by anterior slipping of the vertebral body, and the strain upon the neural arch by apophyseal joint arthritis or by sclerosis of bone surrounding the defect. Frequently there is an indentation of the superior surface of the vertebral body below the slipped body, indicating transmitted pressure from the posterior inferior margin of the slipped vertebral body.

#### Method of Detection and Measurement of Spondylolisthesis.

The lateral view is most accurate for detection of spondylolisthesis. In view of the previously described mechanism of spondylolisthesis, the posterior margin of the slipped vertebral body bears a pathognomonic relationship to the posterior margins of the adjoining vertebrae. This relationship can be detected accurately by the designation of four points and the drawing of two lines, as in Figures II and III; point A is the posterior inferior corner

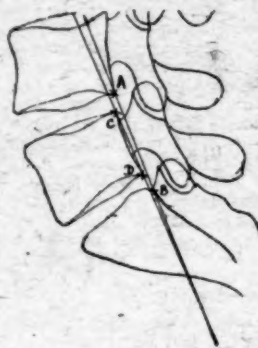


FIGURE II. Tracing of a radiograph of a normal subject; the lines drawn intersect below the fifth lumbar vertebra.

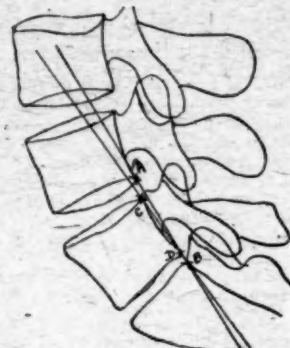


FIGURE III. Tracing of a radiograph of a normal subject; the lines drawn intersect at the lower margin of the fifth lumbar vertebra.



FIGURE IV. Tracing of a radiograph of a normal subject; the lines drawn intersect at the upper level of the fifth lumbar vertebra, forming an angle which does not exceed 3°.

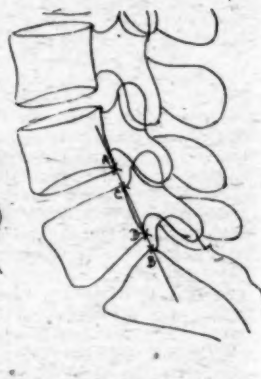


FIGURE V. Tracing of a radiograph of a normal subject; the lines drawn form a single straight line.

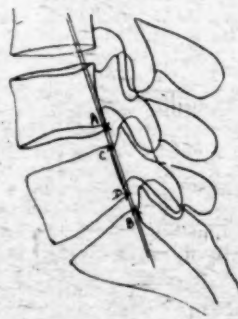


FIGURE VI. Tracing of a radiograph of a normal subject; the lines drawn are parallel, but not more than two millimetres apart.

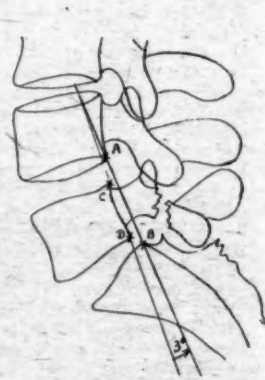


FIGURE VII. Tracing of a radiograph revealing a condition within normal limits, but "borderline" spondylolisthesis may be present; the lines drawn in such cases rarely intersect above the fifth lumbar vertebra, but normally form an angle which has never exceeded 3°.

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FIGURE III.

Tracings of radiographs of subjects with spondylolisthesis; the lines either intersect above the fifth lumbar vertebra and form an angle exceeding  $3^\circ$  [(A) and (B)] or remain parallel, but are more than three millimetres apart [(C)].

of the vertebral body above the one in question in the lateral view, point B is the posterior superior corner of the vertebral body below the one in question (usually the sacrum), point C is the posterior superior corner of the vertebral body in question, and point D is the posterior inferior corner of the vertebral body in question. Lines AB and CD are then drawn and their relationship to each other is studied.

In the normal spine (as found in many hundreds of cases) the following configurations are formed (see Figure II): (i) the lines AB and CD may intersect below the vertebra in question; (ii) they may intersect at the level of the vertebra in question; (iii) they may intersect at the upper margin of the vertebra in question, forming an angle of  $3^\circ$  or less; (iv) the lines may be superimposed, forming a single straight line; (v) they may be parallel, but less than 3.0 millimetres apart; (vi) the lines rarely may intersect above the vertebral body in question, but form an angle of less than  $3^\circ$ .

In spines with bilateral defects of the *pars interarticularis* of a lumbar vertebra, we find the following configurations when slipping can be assumed to have occurred (see Figure III): (i) the lines intersect above the vertebra in question, and the angle formed exceeds  $3^\circ$ ; (ii) the lines are parallel, but are more than 3.0 millimetres apart.

It is considered that, in view of the experimental error involved in the drawing of the lines, a measurement of  $3^\circ$  or  $4^\circ$  and 3.0 or 4.0 millimetres indicates borderline spondylolisthesis. The degree of accuracy will depend upon the quality of the films obtained.

In summary, therefore, we have here a method of accurately detecting and measuring the degree of spondylolisthesis.

#### Method of Detection and Measurement of Stability of a Vertebral Body with a Separated Arch.

The vertebral body in question is placed under various positions of stress or strain, and the degree of spondylolisthesis is measured in each position. A stable vertebral body will remain relatively fixed in the various positions. An unstable vertebral body will slip about in various positions of the spine, and the degree of slipping will vary appreciably—in all probability more than  $2^\circ$  or 2.0 millimetres (Figure IV).

The routine X-ray views obtained in every case in which a bilateral defect of the *pars interarticularis* is present are as follows. The general routine views are taken, as

for all examinations of the lumbosacral part of the spine; they are (i) antero-posterior views, (ii) lateral views, and (iii) both right and left antero-posterior oblique views; for all of these the subject is recumbent. When defects of the *pars interarticularis* are noted, the films are taken (iv) with the patient standing erect (weight-bearing), (v) with the patient standing with spine flexed (with minimal support), and (vi) with the patient standing with spine extended (with minimal support). These last three are all lateral views, centred and coned-down over the lumbosacral region.

Occasionally, when the lines AB and CD are drawn, they may be parallel on one of the films and form angles on

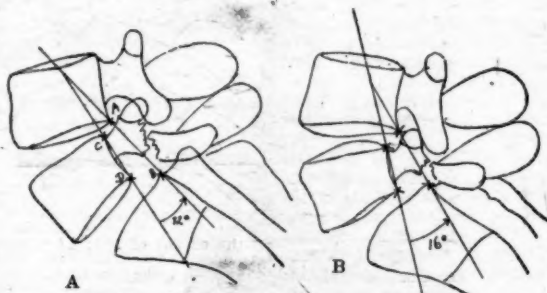


FIGURE IV.

Spondylolisthesis affecting the fifth lumbar vertebra. Tracings of radiographs to demonstrate an instability of  $4^\circ$  ( $16^\circ$  minus  $12^\circ$ ); (A) weight-bearing flexion—the minimum degree of slipping is frequently found in flexion; (B) weight-bearing extension—the maximum degree of slipping is usually found in extension.

the others. In such instances the perpendicular distances of points C and D from line AB are measured and compared on the various films. This method can be used as an alternative method of measurement in any case.

#### Statistical Studies.

Two separate statistical surveys have been carried out.<sup>(1)(9)</sup> The first covered an interval of twenty-two months between April 10, 1942, and February 10, 1944, during which this United States Army general hospital was situated in a rear echelon. The second covered an interval of six months between March 26 and October 26, 1944,

when this same hospital was situated in a relatively forward area. In the former location, patients were examined after they had passed through many hospitals. A true cross-section of army patients was not obtained, and hence this series has not been consolidated with the second series, in which case patients were examined soon after reporting as ill. Also, this hospital was the only functioning general hospital in this area during this latter interval.

Such differences as were noted in the two series are thus readily explainable. Other reasons for these differences are as follows. (i) During the latter interval, many more troops were actually engaged in strenuous duties in the tropics. The high humidity of the tropics may aggravate this ailment. (ii) Attention had been more keenly focused on this condition. It is considered that the second series is more representative, and therefore all references will be made to it.

In this interval of six months, approximately 520 examinations of the lumbosacral part of the spine were made; this was 8% of the total of 6,507 radiographic examinations made in this period.

Sixty-one defects of the *pars interarticularis* were found in 55 patients. All but one of these defects were in lumbar vertebrae, and that one was in the twelfth dorsal. One was also found in each of the first and second lumbar vertebrae, and the remainder were all found in the last three lumbar segments. Eighty-one per centum of the defects were found in the fourth or fifth lumbar vertebra. Slightly less than one-third were unilateral, and slightly more than two-thirds bilateral (60%).

Only patients with bilateral defects of the *pars interarticularis* were found to have spondylolisthesis.

Amongst the 42 patients with bilateral defects, somewhat more than three-fifths had undisputed spondylolisthesis (62%), one-fifth had a borderline lesion (19%), and one-fifth had no spondylolisthesis (19%).

Stability studies could be made on 34 of these patients (81%). No instability was found in the five borderline cases and in six cases tested in which no slipping had occurred (out of the sixteen cases of this type examined).

Of the 26 cases of spondylolisthesis manifest in the film taken with the subject recumbent, in only nine was stability found, and in fourteen instability was present. There was a total of twenty cases of spondylolisthesis in which less than 10° of slipping was present, with the

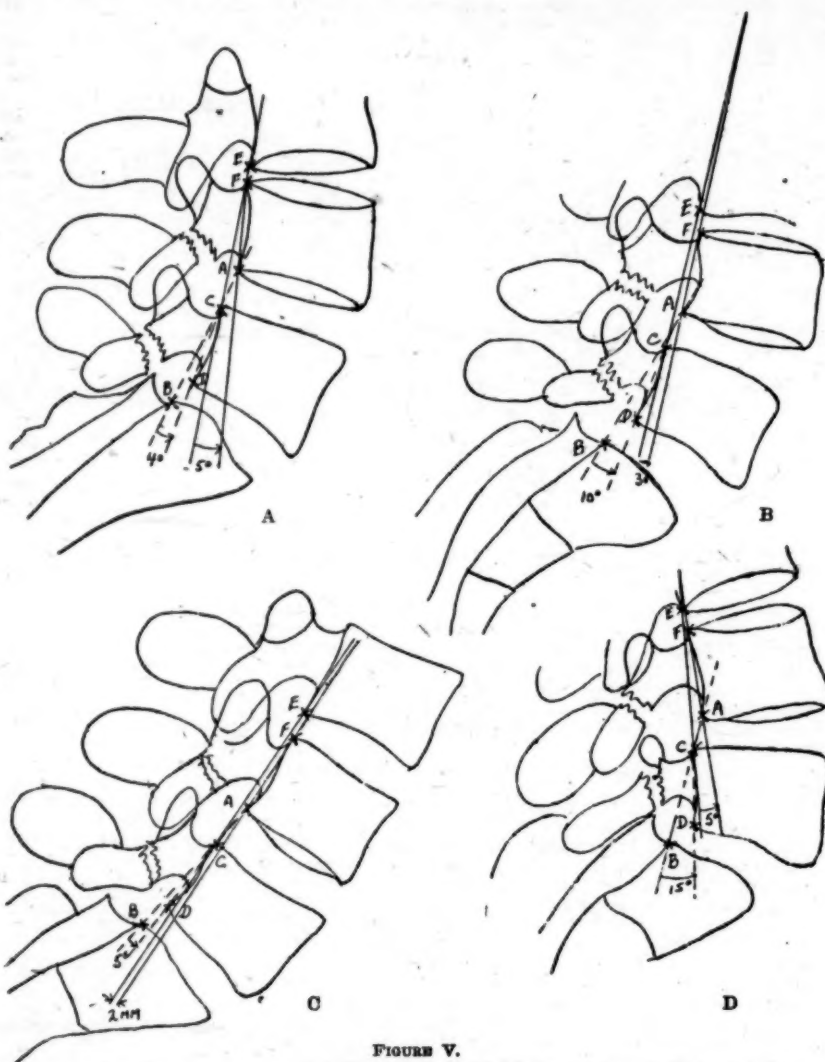


FIGURE V.

Tracings of radiographs of a patient with spondylolisthesis of the fourth and fifth lumbar vertebrae, the fourth lumbar vertebra being stable and the fifth lumbar vertebra unstable to the extent of 11°; (A) patient in recumbent neutral position; the fourth lumbar vertebra has slipped 5° and the fifth lumbar vertebra has slipped 4°; (B) patient in weight-bearing neutral position; the fourth lumbar vertebra has slipped 3° and the fifth lumbar vertebra has slipped 10°; (C) patient in weight-bearing flexion; the fourth lumbar vertebra has slipped two millimetres and the fifth lumbar vertebra has slipped 5°; (D) patient in weight-bearing extension; the fourth lumbar vertebra has slipped 5° and the fifth lumbar vertebra has slipped 15°.

patient in the recumbent position. In nine of these instability was present; in one it was severe (16°) and in eight it was slight (less than 10°).

There were five cases of spondylolisthesis in which 10° or more of slipping were present with the subject in the recumbent position. In four of these slight instability was noted. In one case of severe spondylolisthesis, in which 26° of slipping were present with the patient in the recumbent position, moderate instability of 11° was found.

It is interesting to note that three of the patients without demonstrable spondylolisthesis had evidence of localized anterior lipping of the inferior margin of the defective vertebral body. This is interpreted as evidence of undue stress on the anterior spinous ligaments in this region.



TABLE I.

General Analysis of 620 Cases of Lumbo-Sacral Spine Examinations for Six-Month Interval April 28, 1944, to October 26, 1944.

Observation.	Number of Cases.	Percentage of Total.
Number of defects of <i>pars interarticularis</i> :		
In the fifth lumbar vertebra .. .. .	45	
In the fourth lumbar vertebra .. .. .	9	
In the third lumbar vertebra .. .. .	4	
In the second and first lumbar and the twelfth thoracic vertebrae .. .. .	3	
Total .. .. .	61	11.7
Number of cases with bilateral defects of <i>pars interarticularis</i> :		
Spondylolisthesis present .. .. .	26	5.0
"Borderline" spondylolisthesis .. .. .	8	1.5
No spondylolisthesis .. .. .	8	1.5
Total .. .. .	42	8.0
Number of stability studies done (bilateral defects present):		
On definite spondylolisthesis .. .. .	23	4.4
On "borderline" spondylolisthesis .. .. .	5	1.0
No spondylolisthesis .. .. .	6	1.1
Total .. .. .	34	6.5

## General Summary.

An attempt has been made to place the diagnosis of spondylolisthesis on a more definite basis than has hitherto been done. The method of detection and measure-

instability of the slipped vertebral body. This is done by imposing weight-bearing flexion and extension on the spine, and comparing the alignments of the vertebral bodies in all the views. The method was employed in 34 of the 42 cases in which bilateral defects of the *pars interarticularis* were found. Six of these patients had no spondylolisthesis in any circumstance. Of the remaining 28, 23 patients had definite spondylolisthesis, and five had "borderline" spondylolisthesis. Of these 28, in 14 cases the slipped vertebral bodies were stable and in 14 they were unstable. However, when one considers only the 23 cases in which spondylolisthesis was present, in 14 the slipped vertebral bodies were unstable.

A correlation with symptoms is difficult, since almost all these patients are examined because of low back pain. In the cases in which instability is present, it is usually in spinal extension that the slipping is at its maximum, and in flexion that it is at its minimum. This is not invariably true. Likewise, it is usually in extension that maximum pain is experienced.

Our orthopaedists and surgeons have been grateful for the information regarding stability or instability, because it has given them a more definite basis upon which to establish therapy and disposition. It was they (Lieutenant-Colonel D. M. Glover and Lieutenant-Colonel W. H. McGaw) who originally suggested that it would be helpful if examinations such as these could be accurately carried out.

There is no definite correlation between the degree of spondylolisthesis and the degree of instability. In slight cases the degree of instability may be high, and *vice versa*.

I now feel that the stability test is an important and integral part of every examination of patients with bilateral defects of the *pars interarticularis*.

## Bibliography.

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TABLE II.

Analysis of Results of Stability Tests in Cases of Bilateral Defects of *Pars Interarticularis*.

Diagnosis. (Subject Recumbent.)	Number of Cases.	Lesion Stable.	Lesion Unstable.				Tests Not Made.
			5° to 9°.	10° to 15°.	15° to 20°.	Total	
Spondylolisthesis present .. .. .		9					3
Slight .. .. .	20	26	8	—	1	9	14
Moderate .. .. .	5		4	—	—	4	
Severe .. .. .	1		—	1	—	1	
Borderline spondylolisthesis .. .. .	8	5	—	—	—	0	3
Total .. .. .	34	14	—	—	—	14	6
No spondylolisthesis .. .. .	8	6	—	—	—	0	2
Grand total .. .. .	42	20	—	—	—	14	8

ment of spondylolisthesis described—based on a study of vertebral alignment in many hundreds of spines—leaves little room for doubt as to whether or not slipping has occurred.

This problem is important because of the relatively high incidence of this lesion in all adult age groups. Moreover, it is my conviction that bilateral defects in the *pars interarticularis* should be demonstrated in every case of spondylolisthesis. I have found that approximately one-fifth of patients with bilateral defects of the *pars interarticularis* have no suggestion of spondylolisthesis, one-fifth of patients have "borderline" spondylolisthesis, and the remaining three-fifths of patients have unequivocal spondylolisthesis.

The accurate method of measurement described above has made it possible to measure the degree of stability or

## STAPHYLOCOCCAL ENTERITIS IN CHILDREN.

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VERY few tissues of the human anatomy have any immunity to the invasion of *Staphylococcus aureus*. This organism can cause many different types of infection, such as boils, tonsillitis, laryngo-tracheo-bronchitis, pneumonia, meningitis, septicaemia, middle-ear infections, osteomyelitis and so forth. All these infections have been extensively reviewed in the literature, but the references to the causative role of this organism in enteritis in children are, in

the main, limited to the part played by the enterotoxin in cases of food poisoning.

In general, the types of infection associated with enteritis are either enteral or parenteral. In the enteral type of infection the organisms or their products produce the intestinal disturbance by a direct attack on the bowel wall. The best known of these are the salmonella and dysentery organisms and *Staphylococcus aureus*. As has already been mentioned, it is customary to regard the enterotoxin of the last-named organism as the causative agent rather than its invasive properties. Other organisms such as the paracolon bacilli, *Proteus vulgaris*, *Proteus morganii* and *Bacterium alkalescens* have been incriminated; but their pathogenicity has not been proved. In fact, Mitman<sup>(1)</sup> regards as fortuitous the presence of the first three types in the upper part of the small intestine. *Bacterium alkalescens* has not been isolated in any cases at this hospital, and as only a few cases have been reported in which this was the causal organism, it cannot be regarded as an important cause of enteritis in children.

The parenteral type of infection is one which, although outside the intestinal tract, causes intestinal disturbances. Mitman<sup>(2)</sup> states that such infections can predispose the subject to diarrhoea, but cannot cause it, and that the majority of cases of infantile diarrhoea are primary infections.

Campbell and Cunningham<sup>(3)</sup> found parenteral infections in only one-third of their cases. Most of these were infections of the upper respiratory tract and the middle ear, so that the enteritis could be the result of the spread of the noxious agent to the bowel. In Pederman's<sup>(4)</sup> opinion parenteral infections are the pace-makers of the nutritional disturbances only in infants who have little immunity against infection. Pearson and Wyllie<sup>(5)</sup> take the view that in some cases diarrhoea is merely a symptom of infection in another part of the body. Gunn<sup>(6)</sup> regards parenteral infection as one of the causes of gastro-enteritis. Alexander and Elser<sup>(7)</sup> accept the role of parenteral infection as an inciting agent, but believe that a greater tendency to respond to such stimuli by severe gastro-intestinal symptoms must be postulated in individual cases.

The trend of opinion seems to be towards the view that in most cases gastro-enteritis is an infection of the bowel, but that parenteral infections, by disturbing both the normal production of hydrochloric acid, which is always low in infants, and the normal secretion of gastric juices, allows pathogenic organisms and partially digested food to enter the small intestine. Having once reached the small intestine, these organisms can cause enteritis either by invasion of the tissues or by the action on the bowel wall of toxic products formed by the growth of the organisms in the partially digested food.

The invasion of the normally sterile upper part of the small intestine by coliform organisms from lower down seems to be losing popularity as a cause of enteritis, and opinions differ on the pathogenicity of the atypical coliform organisms and organisms of the *Proteus* group. In our experience these organisms are not uncommon in the faeces of children with infections caused by salmonella and dysentery organisms, and it is probable that the difficulty of isolation is quantitative. Certainly these organisms can be isolated more frequently from subcultures of the faeces in tetrathionate broth medium than from the direct cultures on Leifson or "S.S." medium.

The view held in this laboratory is that, for these organisms to be regarded as intestinal pathogens, agglutinins of the organisms must be present in the blood of the patients from whom the organisms are recovered, and that such agglutinins must either be absent or their concentration must be significantly lower in the blood of normal subjects. The reason for this opinion is the constant presence of agglutinins of the known intestinal pathogens—namely, salmonella and dysentery organisms—in the serum of patients with enteritis caused by these organisms.<sup>(8)</sup>

The role of *Staphylococcus aureus* as a possible cause of enteritis is interesting, because this organism causes not only infections such as boils, abscesses, osteomyelitis and

so forth, which are remote from the gastro-intestinal tract and which are parenteral in the real sense, but also infections of the nose, throat, lungs, middle ear and elsewhere, which can produce intestinal disturbances by direct spread of the infection to the bowel mucosa. An opportunity is thus provided for determining the importance of parenteral infection by this organism in the causation of enteritis.

Very few cases of staphylococcal enteritis have been reported, and Cass,<sup>(9)</sup> in her review of staphylococcal infections of the newborn, states that no such cases in infants have been recorded. However, in 1942 Felsen and Wolarsky<sup>(10)</sup> reported an epidemic of diarrhoea affecting nineteen newborn infants. Three of these children excreted *Staphylococcus aureus* in their stools, and in two of these instances the organism was present in pure culture. As this was the only pathogenic organism isolated from the stools of any of the patients, the inference is that in these three cases at least it was the causative organism. *Staphylococcus aureus* was also isolated from the throats of these three patients and one other. These workers were of the opinion that the presence of this organism in the stools of some of their patients was significant; but they were not convinced that the evidence was sufficient to implicate any single bacterial agent.

References to the incidence of *Staphylococcus aureus* in the stools of normal children are few in number. Blacklock, Guthrie and Macpherson<sup>(11)</sup> examined the gastro-intestinal contents of 50 children of various ages suffering from appendicitis. Material was removed from the stomach of seven, from the small intestine of 39, and from the caecum of four; but in no instance was *Staphylococcus aureus* isolated. In a second series of 36 children who had died from causes other than infection *Staphylococcus aureus* was isolated from the pooled contents of duodenum and jejunum in 3.7% of the cases examined, but not at all from the lower levels. In a third series of 42 children who died from some profuse parenteral infection which in 23 cases was bronchopneumonia and in 19 septicæmia, *Staphylococcus aureus* was found in the upper coils of the intestine in 18% of the bronchopneumonia cases and in 62% of the staphylococcal septicæmia cases. The organism was usually absent or very scanty in the lower levels of the intestine. An interesting point is that, in the last series, two-thirds of the patients had suffered slight secondary gastro-enteritis. The extent of the correlation between the presence of *Staphylococcus aureus* and gastro-enteritis is, however, not given. In a fourth series of 46 patients who died from acute primary gastro-enteritis, various organisms were isolated, but these did not include the staphylococcus.

The determination of the incidence of *Staphylococcus aureus* in the faeces is difficult for two main reasons. The first is the preponderance of coliform bacilli, and the second is that most of the selective media used for the isolation of intestinal pathogens inhibit the growth of staphylococci. Tetrathionate broth, which has proved its value for the isolation of the salmonella organisms, is an exception, and by the use of this medium it is possible to determine the incidence of the staphylococcus in the faeces.

This report has three main objects. The first is to describe the incidence of diarrhoea in children suffering from staphylococcal infections; this is for the purpose of determining the types of infection most likely to be associated with diarrhoea. The second is to describe the incidence of *Staphylococcus aureus* in the faeces of children not suffering from enteritis. The third is to describe the incidence of the same organism in the faeces of children suffering from enteritis.

#### Experimental Investigation.

##### Isolation of *Staphylococcus aureus* from the Faeces.

The faeces were inoculated onto Leifson's desoxycholate medium and into a tube of tetrathionate broth in the usual way and incubated overnight. On the following day the broth culture was subcultured onto "S.S." agar and onto a slope of Löffler's blood serum. The use of this combination of media made possible the isolation of



salmonella and dysentery organisms in addition to the staphylococcus. Efforts to isolate the hæmolytic streptococcus from the faeces were unsuccessful. Enrichment media, including tetrathionate broth, failed to support the growth of this organism. Stained films were prepared from the serum slope culture, and if any staphylococci were present pure cultures of these were made. When proteus organisms were present, it was sometimes possible to isolate the staphylococcus by plating onto litmus MacConkey agar. In many cases the growth of staphylococci on the serum slope was so profuse that individual colonies could be grown in subcultures without further plating. Only colonies with yellow or orange pigmentation were used for further tests. When a pure culture of the strain was obtained, this was tested for hæmolyisin and coagulase production. The presence of strains which did not produce both hæmolyisin and coagulase was not recorded.

#### Hæmolyisin Production.

The method described by Christie and North<sup>(12)</sup> was used to determine hæmolyisin production. The strains were spot-inoculated onto sheep blood agar and incubated overnight at 37° C. Those colonies with zones of clearing around them were tested for coagulase production. More elaborate tests to determine the types of toxin produced by the organisms were not attempted.

#### Coagulase Production.

For coagulase production the slide-agglutination test was used.<sup>(13)</sup> A thick suspension of the organism was prepared in a drop of normal saline solution on a slide. To this was added an equal quantity of citrated plasma, which had been diluted with an equal quantity of saline solution. Suspensions which were not immediately agglutinated were discarded.

#### The Agglutination Test.

To separate cases of double infections from those caused by only one type of organism, the serum of many of the patients was examined for salmonella and dysentery agglutinins. The suspensions consisted of the "H" suspensions of the salmonella organisms mentioned elsewhere,<sup>(11)</sup> and suspensions of the Type II Flexner organism and a recently isolated Sonne bacillus.

#### Diarrhoea Associated with Staphylococcal Infections.

As has been mentioned previously, a study of the infections caused by *Staphylococcus aureus* offers an oppor-

tunity to gauge the importance of the site of the infection in the causation of diarrhoea. If the products of parenteral infection cause diarrhoea either by their action via the hæmatogenous route or by acting reflexly on the intestinal mucosa, then the site of the infection should not affect the proportion of patients who suffer from diarrhoea. If, on the other hand, the diarrhoea is caused by the action of the organism or its products on the intestinal mucosa, then the greater proportion of cases of diarrhoea will occur among those whose infections allow a direct spread of the infection to the bowel mucosa.

The clinical histories of all the children admitted to this hospital during the last ten years with *Staphylococcus aureus* infections, or who developed such infections whilst in hospital, were examined for evidence of diarrhoea. The isolation of the organism from the site of the infection was considered sufficient proof of its pathogenicity, and in the majority of cases hæmolyisin and coagulase production tests were not made. The patients were divided into three age groups—namely, those aged eleven months or under, those aged between one year and one year and eleven months, and finally, those aged between two years and twelve years. Two tables have been prepared (Tables I and II). The first shows the incidence of the infection in various sites at the different age levels, and the second shows the incidence of diarrhoea associated with these infections.

The figures show that staphylococcal infections in the child aged under one year are widespread and occur almost equally in most localities, and that very little resistance to the action of the organism has developed. The trend in the second age group, although slight, is towards a greater localization of the infection. This is shown by a decrease in the incidence of ear infections and a slight decrease in the proportion of skin infections. In the third age group this tendency is more obvious, and the majority of infections occur in the upper respiratory tract or as localized abscesses or osteomyelitis infections. Possibly antibodies of the "spreading factor" are absent from the serum of the younger infants, but develop as the child grows older; this would account for the greater localization of the infection in the older children. Table II gives the number and proportion of the above-mentioned patients who developed diarrhoea during the course of the infection. The cases of urinary infection, septicæmia and conjunctivitis were too few to allow an opinion to be formed on their association with diarrhoea in children; but the figures are given to complete the series.

TABLE I.  
The Sites of Staphylococcal Infections.

Site of Infection.	Age Group.					
	0 to 1 Year.		1 to 2 Years.		2 to 12 Years.	
	Number of Patients.	Percentage of Total for Age Group.	Number of Patients.	Percentage of Total for Age Group.	Number of Patients.	Percentage of Total for Age Group.
Ear:						
Otitis media, mastoiditis .. .. .	38	21	14	10	23	4
Upper respiratory tract:						
Tonsillitis, bronchitis, pneumonia, stomatitis .. .. .	52	29	60	43	230	42
Skin:						
Dermatitis, infected burns, wounds, umbilicus, eczema .. .. .	33	18	19	13	22	4
Abscesses:						
Various localized, osteomyelitis, infected glands .. .. .	43	24	41	29	227	42
Other:						
Kidney and bladder infections, conjunctivitis, septicæmia .. .. .	14	8	7	5	44	8
Total .. .. .	180	100	141	100	546	100

TABLE II.  
Diarrhoea Associated with Staphylococcal Infections.

Site or Type of Infection.	Age Group.					
	0 to 1 Year.		1 to 2 Years.		2 to 12 Years.	
	Number with Diarrhoea.	Percentage of Patients with Infection at the Site.	Number with Diarrhoea.	Percentage of Patients with Infection at the Site.	Number with Diarrhoea.	Percentage of Patients with Infection at the Site.
Ear .. .. .	29	76	5	36	0	0
Upper respiratory tract ..	29	56	16	27	11	5
Skin .. .. .	28	85	5	26	0	0
Abscesses .. .. .	5	11	2	5	1	0.5
Other .. .. .	5	4	0	0	3	7
Total .. .. .	96	53	28	20	15	3

The figures show that, in children, diarrhoea can be associated with all types of infections caused by *Staphylococcus aureus*. Among the infants under twelve months old diarrhoea was a complication in slightly more than half the cases and was most common in association with infections of the ears, the upper respiratory tract and the skin. It was not so frequently associated with infections which are more or less localized, such as abscesses and osteomyelitis. This indicates that the risks of associated diarrhoea in infants are greater with those infections in which it is possible for the staphylococcus or its products to reach the intestine. In very young infants these infections comprise the majority, because diseases like infected dermatitis and eczema create a "staphylococcal atmosphere" around the child, whose restless habits make very real the chances that the organism may reach the mouth and be swallowed.

In the second group diarrhoea occurred in nearly a quarter of the cases; this indicates a less, although by no means negligible, likelihood of associated diarrhoea. This is associated with much the same types of infections as those in the babies; but a decrease in the incidence of diarrhoea is found in the cases of skin disease.

Very few patients in the last group suffered from diarrhoea, and this complication was confined almost entirely to patients with infections of the upper respiratory tract. In the one case in which diarrhoea was associated with abscess formation, this abscess was in the appendix.

It can be seen that the tendency for parenteral staphylococcal infection to be accompanied by diarrhoea is greatest in those infections whose site enables the organism or its products to spread to the intestine. The lower incidence of diarrhoea in the older children is probably related to the increase in resistance to infection that children acquire as they increase in age.

#### The Incidence of *Staphylococcus Aureus* in the Faeces of Patients not Suffering from Enteritis.

Before the *Staphylococcus aureus* is incriminated as the cause of the disturbance when it is found in the faeces of

patients suffering from gastro-enteritis, the incidence of the organism in the faeces of children who have suffered no intestinal disturbance must be determined. To accomplish this the faeces of over 200 children were examined. The clinical histories of these children revealed no evidence of diarrhoea, and as in the cases of enteritis, the majority were aged below two years. The subjects came from the same wards as the enteritis patients, so that the nutritional and environmental risks of acquiring the organism were similar. A routine examination of the faeces was made in order to compare the "carrier" rate of the staphylococcus with that of known intestinal pathogens—namely, the salmonella and dysentery organisms.

Table III shows the incidence of *Staphylococcus aureus* and the other intestinal pathogens in the faeces of children not suffering from enteritis at the different age levels.

The figures show that pathogenic staphylococci are present more frequently in the faeces of patients not suffering from enteritis than are either salmonella or dysentery organisms. This is not surprising when the widespread occurrence of the organism and the ease with which it can be conveyed to the intestine are considered.

#### The Incidence of *Staphylococcus Aureus* in the Faeces of Patients Suffering from Gastro-Enteritis.

From August, 1944, the faeces of children suffering from diarrhoea were examined for the presence of *Staphylococcus aureus* as well as for the salmonella and dysentery organisms, and the figures given below are the results of the faecal and agglutination tests made during the following twelve months. Sixteen of the dysentery cases and four of the salmonella cases were identified by the agglutination test. Staphylococci were isolated from the faeces of three of the dysentery patients and two of the salmonella patients. The serum of one of the patients with staphylococcal infections produced agglutination with *Bacterium typhi-murium* "H"; this revealed a previously unsuspected salmonella infection.

TABLE III.  
Incidence of Pathogenic Organisms in the Faeces of 254 Children not Suffering from Enteritis.

Organisms Isolated.	Age Group.			Total. (254)	Percentage of Total.
	0 to 1 Year. (90 Subjects.)	1 to 2 Years. (73 Subjects.)	2 to 12 Years. (71 Subjects.)		
<i>Staphylococcus aureus</i> .. .. .	4	2	1	7	2.8
Salmonella organisms .. .. .	1	2	1	4	1.6
Dysentery organisms .. .. .	0	0	0	0	0



TABLE IV.  
Incidence of Bacterial Agents Causing Enteritis.

Type of Case.	Age Group.			Total. (222)	Percentage of Total.
	0 to 1 Year. (98 Subjects.)	1 to 2 Years. (71 Subjects.)	2 to 12 Years. (53 Subjects.)		
<i>Staphylococcus aureus</i> infection only ..	26	14	4	44	19.8
Salmonella infection only .. ..	14	17	1	32	14.4
Dysentery only .. .. .	5	10	27	42	18.9
<i>Staphylococcus</i> infection and dysentery	7	5	11	23	10.3
<i>Staphylococcus</i> and salmonella infections	5	3	0	8	3.6
Salmonella infection and dysentery ..	1	1	1	3	1.3
Number identified as caused by bacterial agents .. .. .	58	50	44	152	68.0

The serum of 21 of the patients with staphylococcal infections was examined for dysentery and salmonella agglutinins; all the results were negative.

Table IV shows the number of cases that were identified as being caused by the different organisms. Cases in which double infections were present are given under separate headings.

The figures show that *Staphylococcus aureus* was isolated in 19.8% of the gastro-enteritis cases in which there was no evidence of other causal organisms. This is in contrast with the 2.8% of non-enteritis cases in which the organism was isolated; it indicates that *Staphylococcus aureus* is present more frequently in the faeces of children suffering from enteritis than in those of normal children, and that it could be the cause of the diarrhoea.

#### Enteritis Associated with the Presence of *Staphylococcus Aureus* in the Faeces.

If *Staphylococcus aureus* or its products attack the bowel wall, it is possible that the picture presented in such cases will differ in some respects from that in cases caused by the known intestinal pathogens. It is proposed, therefore, to compare certain features of the three types of cases—staphylococcal, salmonella and dysenteric.

#### Age Incidence.

As has been shown in Table IV, the majority of the patients with staphylococcal infections were aged under twelve months, and this type of infection was rare in children aged over two years. The salmonella infections had showed a similar age incidence, except that a larger proportion of the patients were aged between one year and two years. The one patient aged over two years had no diarrhoea; this child was suffering from salmonella fever identified by the agglutination test. The dysentery organisms showed a tendency to attack the older children, subjects aged under one year being comparatively few in number.

#### The Nature of the Exudate.

Microscopic examination of the faeces was made in the majority of cases; Table V shows the number in which mucus only was present and also the number in which mucus and either blood or pus or both were present. If the presence of blood or pus in the exudate is taken as an indication of the severity of the attack of the organism on the bowel wall, the indications are that the effect of a staphylococcal infection is less severe than that of either the salmonella or dysentery organisms.

#### Mortality Rate.

Three children, one in each age group, died as a result of infection by staphylococci.

The first child was aged eight months, and had a history of diarrhoea for six weeks before admission to hospital. *Staphylococcus aureus* was isolated from the faeces, which

TABLE V.  
The Nature of the Exudate.

Type of Exudate.	Type of Case. <sup>1</sup>			
	Staphylococcal.	Salmonella.	Dysentery.	Staphylococcal and Dysentery.
Mucus with pus and/or blood ..	11	15	22	15
Mucus only ..	28	11	11	6

<sup>1</sup> In these columns are given the numbers of cases in which the causal organism was identified as *Staphylococcus aureus*, one of the salmonella organisms, one of the dysentery organisms, or both *Staphylococcus aureus* and a dysentery organism.

also contained pus and mucus. The child also had an infected mouth, from which the same organism was isolated. Sulphaguanidine was administered on the patient's admission to hospital, but was discontinued owing to lack of response. The child became dehydrated and died nine days after admission to hospital. No post-mortem examination was made.

The second child was aged one year and five months, and was admitted to hospital with a history of diarrhoea of ten days' duration. *Staphylococcus aureus* was isolated from the faeces, which also contained blood and mucus. Diarrhoea continued until death, which occurred thirteen days after the child's admission to hospital. At the post-mortem examination the intestinal contents consisted of mucus and epithelial cells. *Staphylococcus aureus* was isolated from the bowel contents and also from the blood. Examination of sections showed that the mucosa of both the small and large bowel was degenerated, and in the liver toxic changes were found. No septic infarcts were found in the liver, spleen, kidney or lungs. Sheep-cell haemolysins were present in the blood serum, and these lysins were neutralized by staphylococcus antitoxin. Agglutination tests on the child's serum taken during life and at the post-mortem examination revealed no agglutinins of the salmonella or dysentery organisms.

This seems a clear case of toxæmia following staphylococcal enteritis.

The third child was aged five years, and was admitted to hospital as possibly suffering from typhoid fever. No pathogenic organisms were isolated from the blood or from the faeces. Agglutination tests revealed no salmonella or dysenteric infection. No diarrhoea was present until the day before death. At the post-mortem examination chronic ulceration of the stomach and extensive ulceration of the small bowel were seen. The faeces, which consisted mainly of pus and mucus with a few streaks of blood, contained *Staphylococcus aureus*. The same organisms were present in cultures of the bowel ulcers, which were covered with a pseudomembranous exudate. Masses of staphylococci could be seen in the sections of the intestinal ulcers.

The picture in this case was of a staphylococcal infection simulating a salmonella fever. There were no deaths in the salmonella or dysentery series.

### Duration of Diarrhoea.

The time taken for the bowel to recover from the irritant effects of the infection varied from case to case and from age group to age group. The average period of continued diarrhoea for the associated organisms is given in Table VI.

TABLE VI.  
The Duration of Diarrhoea.

Type of Infection.	Age Group.		
	0 to 1 Year.	1 to 2 Years.	2 to 12 Years.
Staphylococcal .. .. .	13 days.	7 days.	3 days.
Salmonella .. .. .	15 days.	8 days.	—
Dysenteric .. .. .	10 days.	6 days.	4 days.
Staphylococcal and dysenteric ..	10 days.	8 days.	6 days.

The figures show that on the average the diarrhoea continues for approximately the same length of time for all types of associated organisms. The period of recovery becomes less as the child grows older, and judging by the figures for the salmonella and dysenteric infections, is not dependent on the efficacy of treatment for eliminating the causal organism.

### Seasonal Incidence.

The admission of patients suffering from staphylococcal enteritis to this hospital was distributed fairly evenly throughout the year, most being admitted in August, 1944 (six patients), and April, 1945 (six patients). The fewest patients were admitted in October, 1944 (one), and January and February, 1945 (two each). The cases in which dysentery only was present occurred mainly in the hot summer months of January, February and March, when eight, five and six patients respectively were admitted to hospital. Only one patient was admitted in August, 1944, and December, 1944. The majority of the salmonella cases occurred in the first seven months of 1945, when 25 of the 32 patients were admitted to hospital. The peak month was January, when five patients were admitted.

The dysentery cases associated with a secondary staphylococcal infection had a seasonal incidence similar to that of the staphylococcal enteritis cases. The majority occurred in the cooler months of 1945, six patients being admitted to hospital in April and seven in July.

### Distribution of the Cases.

The staphylococcal cases came from all districts of the metropolitan area; but to compare their distribution with that of the dysentery and salmonella cases, the districts have been divided into four main areas. The "pughole" area consists of districts containing "pugholes" which are used as rubbish dumps, or districts containing factories with open refuse dumps. The distribution of the cases is shown in Table VII.

TABLE VII.  
Distribution of the Cases.

Area.	Type of Case.			
	Staphylococcal.	Dysentery.	Salmonella.	Mixed Dysentery and Staphylococcal.
"Pughole" .. .. .	11	18	13	11
City .. .. .	3	8	4	2
Aboriginal camp ..	3	4	1	1
Elsewhere .. .. .	27	12	14	9

The figures show that whereas the majority of the dysentery and salmonella cases come from the "pughole" and city areas, this is not so with the staphylococcal cases.

It has been postulated elsewhere that "pugholes" and refuse dumps are excellent breeding places for rodents and flies, and that these animals and insects are responsible for the prevalence of dysenteric and salmonella infections in the particular areas. The different distribution of the staphylococcus cases and the different seasonal incidence favour the suggestion that enteritis associated with *Staphylococcus aureus* in the faeces is a separate entity, and that this type of infection is not necessarily fly-borne.

### Double Infections.

The cases of dysenteric infections and associated staphylococcal infections were all, as far as could be judged from the clinical histories, cases of primary dysenteric infection. Nearly one half of these patients were aged over two years, and the exudate from most of them contained blood or pus as well as mucus. An interesting fact, which may or may not have some significance, was that the period of diarrhoea in these cases was increased in the higher age groups.

The cases of combined salmonella and staphylococcal infections were more difficult to classify. Two of the patients acquired their salmonella infections in hospital and were classified as suffering from primary staphylococcal infections; but evidence in the remaining cases suggested a primary salmonella infection.

### Summary.

1. The tendency for staphylococcal infections in children to become localized as the child's age increases is noted.
2. The incidence of diarrhoea associated with staphylococcal infections decreases as the age of the child increases.
3. There is a tendency for the associated diarrhoea to be restricted to those cases in which a direct spread of the primary infection to the bowel is possible.
4. The incidence of *Staphylococcus aureus* in the faeces of patients not suffering from enteritis was 2.8%.
5. The incidence of *Staphylococcus aureus* in the faeces of patients suffering from gastro-enteritis was 34%; over one half of these infections were regarded as primary staphylococcal infections.
6. The staphylococcus causes diarrhoea in infants aged under one year more frequently than in the other age groups, the damage to the bowel wall being apparently less severe than that caused by the salmonella or dysentery organisms. However, the results of the staphylococcal infection can be severe enough to cause the child's death.
7. Bacterial agents responsible for 68% of the patients suffering from enteritis examined at this hospital were identified.

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## THE TUBERCULIN PATCH TEST: A COMPARISON WITH THE MANTOUX TEST.

By CATHERINE HUDSON

AND

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SINCE the introduction of the Vollmer tuberculin patch test many experiments have been made to compare its value with that of the intracutaneous test of Mantoux, but the results have been conflicting. Donald Court,<sup>(1)</sup> who tested a group of children, found that 98% of those who reacted to the Mantoux test reacted to the Vollmer patch test. He also quotes Wolf and Hurwitz, who in a series of 936 young persons under the age of sixteen years found a disagreement between the results of the two tests of only 1.8%. More recently, Bell and Jerram<sup>(2)</sup> concluded that the patch test was valueless.

We have recently compared the reactions to the two tests given by 245 of the patients and staff at the Lady Davidson Home, Turrumurra, New South Wales.

The Mantoux test was carried out by injecting into the skin of the outer side of the arm 0.00125 milligramme of tuberculin purified protein derivative dissolved in 0.025 millilitre of buffered diluent, according to the single injection technique of Anderson and Harvey.<sup>(3)</sup> The Vollmer patch was firmly applied to the inner side of the arm after thorough cleansing of the skin with acetone, and instructions were given to prevent it from becoming wet until its removal forty-eight hours later. The results of the Mantoux tests were read after forty-eight hours, the subject being considered to have reacted if an area of oedema not less than 0.5 centimetre in diameter was found. In a few cases areas of oedema from 0.2 to 0.5 centimetre in diameter, which seemed without doubt to be specific reactions to tuberculin, were recorded as such. The results of the patch tests were read on removal in forty-eight hours and again forty-eight hours later. The second reading serves to record delayed reactions and also allows for the subsidence of any plaster reaction. Any reaction, however slight, within the limits of the test squares was regarded as a reaction to tuberculin.

The results are set out in Table I, in which the subjects are divided into age groups.

TABLE I.

Age. (Years.)	Mantoux Test.		Vollmer Patch Test.	
	Reaction.	No Reaction.	Reaction.	No Reaction.
10 to 29	53	0	53	0
30 to 39	50	2	49	3
40 to 49	38	2	38	2
50 to 59	66	3	65	4
60 to 72	30	1	26	5

No reactor to the patch test failed to react to the Mantoux test. Of the six subjects who gave discrepant results, failing to react to the patch test, five gave a "+" reaction to the Mantoux test, and one gave a "++" reaction. Thus in the age groups nineteen to fifty-nine

years, 206 subjects reacted to the Mantoux test, and of these, 204 reacted to the Vollmer patch test; this represents a discrepancy of 0.97%. In the whole group (nineteen to seventy-two years), of the 237 who reacted to the Mantoux test, 231 reacted to the Vollmer patch test—a discrepancy of 2.5%.

We suggest that the cause of Bell and Jerram's failure was due, at least in part, to the fact that the final readings were made after forty-eight hours. Approximately 40% of the foregoing positive reactions to the Vollmer test developed in the second forty-eight hours.

### Conclusion.

The Vollmer patch test applied to young and even middle-aged persons, provided due care is exercised in its use, is for most practical purposes a reliable method of testing the reaction to tuberculin.

### Acknowledgements.

Our thanks are due to Dr. Douglas Anderson and Dr. N. Pryde for advice and help, and to Andrew's Laboratories, Sydney, for a supply of Vollmer patch tests (Lederle).

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## BLOOD GROUPS IN TASMANIA.

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THIS report contains a record of over 20,000 blood groupings performed in the last four years at the Commonwealth Health Laboratory, Hobart. The blood samples were taken from forces and "A.R.P." personnel, and from prospective donors to the Red Cross Blood Transfusion Service, and may be regarded as being representative of the population of Tasmania.

### Technique.

Groupings were performed on fresh blood samples by the open slide or tile method, potent sera supplied by the Commonwealth Serum Laboratories, Melbourne, being used. No final reading was made in less than twenty minutes. Doubtful agglutinations were examined by the low power of the microscope, but were seldom encountered except in the comparatively rare group A<sub>2</sub>B (0.5%). The serum also of 1,350 prospective donors was typed, known A and B cells being used. The results agreed in all but one case; the subject was a woman whose blood had moderately strong Rh antibodies.

### Results.

Table I gives the number and percentage of the four groups, the probable error, and the frequency of the genes *p*, *q* and *r*.

### Discussion.

In a comparison of the figures obtained in Hobart with those of the Victorian Red Cross Blood Transfusion Service<sup>(1)</sup> (group O, 47.7%; group A, 39.6%; group B, 9.8%; group AB, 2.9%), it is found that, with the possible exception of group AB, the differences are not statistically significant. A comparison between the Hobart figures and those obtained from 1,000 persons in Queensland<sup>(2)</sup> (group O, 46.3%; group A, 38.0%; group B, 10.7%; group AB, 5%) shows a significant difference in group AB. Here the difference (1.8%) is nearly four times the probable error (0.47%). Table I shows that  $p + q + r = 0.9997$ —a deviation of only 0.0003. The figures thus support Bernstein's theory,

TABLE I.  
Blood Groups in 21,137 Tasmanians.

	Groups.				Frequency of Genes.			D/σ <sub>D</sub>
	O	A	B	AB	p	q	r	
Number .. .. .	9,972	8,496	1,998	671	0.2475	0.0653	0.6869	0.43
Percentage .. .. .	47.18	40.19	9.45	3.17				
Probable error .. .. .	0.23%	0.23%	0.14%	0.08%	p+q+r=0.9997			

or to put it another way, as the figures agree with Bernstein's theory, they are probably correct.

#### Summary.

The blood of over 20,000 Tasmanians was tested for A and B reactions, and the frequency of blood groups in the population was determined. The figures are compared with two other Australian series.

#### Acknowledgement.

I am indebted to the Director-General of Medical Services and to the Director-General of Health for permission to publish these figures.

#### References.

- <sup>(1)</sup> Blood group figures from the Victorian Red Cross Blood Transfusion Service (personal communication).  
<sup>(2)</sup> Noel R. Henry: "Blood Groups in Queensland", THE MEDICAL JOURNAL OF AUSTRALIA, June 24, 1939, page 932.

## Reports of Cases.

### THE EMPIRICAL USE OF PENICILLIN FOR A SULPHONAMIDE-RESISTANT PATIENT.

By M. G. CUMMINE,

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AND

J. W. S. LAIDLEY,

From the Department of Urology, Royal Prince Alfred Hospital, Sydney.

#### Clinical Record.

THE patient, J.J., aged sixty-nine years, was admitted to hospital on May 16, 1945, suffering from prostatic hypertrophy and mild glycosuria. His symptoms were nocturnal frequency of micturition and difficulty on micturition; these had been present for two years. He could not count the number of times of urination during the day and each night he had to rise five times. Slight burning and scalding in the anterior portion of the urethra were present during micturition, and some mild degree of urgency was associated with the act. His past history contained no relevant information, with the exception of a hæmorrhoidectomy some twenty-five years previously.

Physical examination showed the patient to be a white-haired man, moderate hypertrophy of the prostate being found on rectal palpation. The radial vessel walls were thickened and sclerotic and occasional extrasystoles were palpable. The sphygmomanometer reading of the blood pressure was 160 millimetres of mercury (systolic) and 90 millimetres (diastolic). There was no cardiac enlargement. The urine was acid to litmus and of specific gravity 1.015, and a trace of reducing substance was present. His temperature, after his admission to hospital, was 100° F. The fasting blood sugar content was found to be 141 milligrammes per centum, and the hæmoglobin value was 101%, and microscopic examination of the urine showed pus cells (10 per high dry field) to be present with many associated organisms. Attempted culture was unsuccessful.

A course of sulphadiazine tablets was given, some 78

in all (39 grammes), with potassium citrate and copious fluids per mouth. The patient became afebrile in a few days. Six days later (May 26) his temperature rose to 101° F. and he experienced rigors. On May 30 the blood urea level was 28 milligrammes per centum, and the white cells numbered 7,300 per cubic millimetre; macroscopic examination of the urine showed the number of pus cells to be increased to 70 per high dry field, many triple phosphate crystals and organisms being present. Culture of the specimen produced a growth of *Bacillus proteus* and *Bacillus pyocyaneus*.

On June 2 his temperature rose to over 104° F., and in view of the previous good response to sulphadiazine he was given 32 more tablets (16 grammes) with potassium citrate. The temperature fell that evening to normal, but rose next morning to 103° F. He was very ill at this stage, though the blood was sterile, so the administration of penicillin (15,000 units every three hours by intramuscular injection) was commenced. The temperature next day was 101.5° F., and the next day it was normal. In all, 515,000 units of penicillin were administered. He was afebrile for three days, and on June 10 the temperature rose again. At this time penicillin was in low supply, so it was decided to use sulphanilamide, as sulphadiazine on the second administration had not proved of value; 32 tablets (16 grammes) were given with no effect, the temperature rising steadily to 102.5° F. Culture from the urine at this stage yielded a growth of hæmolytic *Bacillus coli*.

Penicillin administration was recommended, and within two days he was again afebrile; 530,000 units were given by the previous method of administration. His temperature remained down for ten days, and his prostate was removed suprapubically in one stage under "Sodium Pentothal" anaesthesia on June 25. For the first five days after operation the temperature ranged between 99° and 100° F., and little bleeding occurred. On the sixth, seventh and ninth days, however, he became obviously toxæmic, and the temperature swung daily from normal to 102° F. The blood urea level at this stage was 25 milligrammes per centum. On July 6 (ninth post-operative day) penicillin treatment was again commenced, and overnight his temperature became normal. A full course of 1,000,000 units extending over nine days in doses of 15,000 units every three hours was administered. He remained afebrile until his discharge from hospital on July 26. On the day after penicillin administration ceased a urinary specimen was again examined (July 16); pus cells were present—80 per high dry field—with copious triple phosphates and organisms. Aerobic culture yielded a growth of hæmolytic *Bacillus coli* and *Bacillus proteus*, and a scanty growth of hæmolytic streptococci. Anaerobic culture yielded a growth of *Bacillus coli*, *Bacillus proteus* and hæmolytic *Bacillus coli*, and a scanty growth of hæmolytic streptococci. The patient felt well, looked well and was afebrile. The daily frequency of micturition was now five times and the night frequency twice. There was no dysuria. His diabetic condition was controlled by a 2,000 Calorie diet and a morning administration of ten units of insulin. Acetone appeared only rarely in the urine. A glucose tolerance test on May 15 yielded the following figures. The fasting blood sugar level was 270 milligrammes per centum, and thereafter the level was 280, 280, 290 and 290 milligrammes per centum at intervals of half an hour. A trace of sugar was present in each specimen of urine examined throughout the test.



## Comment.

Though we are fully aware of the fallacies in attempting to correlate clinical improvement with bacteriological findings, it was apparent in this case that on three separate occasions penicillin produced a dramatic response. It would appear that on the first occasion sulphadiazine produced a satisfactory result. On the second occasion, in the presence of a severe pyuria, *Bacillus proteus* and *Bacillus pyocyaneus* being grown on culture, no such response occurred. As the temperature had fallen to normal on the first occasion after sixteen grammes had been administered, and as it was still at 103° F. on the second instance after a similar quantity had been given, the deduction was that the organisms had become sulphonamide-resistant. This would appear to be confirmed by the fact that on the third administration during the next febrile episode of an allied sulphonamide drug (sulphanilamide—sixteen grammes) no response followed. On the other hand, penicillin proved rapidly efficacious on each occasion, as it has frequently been shown to do in such circumstances.

The bacteriological condition of this patient's bladder was varied; there was apparently a mixed infection of *Bacillus proteus*, *Bacillus coli* and streptococci of hæmolytic and non-hæmolytic types.

That penicillin is of doubtful value against *Bacillus proteus* and *Bacillus coli* is well known, and it is suggested that though its administration in this case may have depressed these organisms, yet its greatest value may have been in the control of the hæmolytic streptococcal element. It is significant that the urine did not become sterile nor the pyuria disappear. The great clinical improvement of the patient, whose condition at no stage was suggestive of uræmia, is difficult to explain in the light of the cytological condition of the bladder, and the suggestion is "put forward that a severe hæmolytic streptococcal element may have provided the toxic factor."

It is suggested that the empirical use of penicillin may be considered justified in such cases, in which there is a failure to respond to the sulphonamides, even in the absence of adequate indications on cultural examination of the urine.

#### COLUMNAR-CELLED CARCINOMA OF THE RECTUM TREATED BY RADON: PRELIMINARY REPORT, SIXTEEN MONTHS AFTER TREATMENT.

By P. D. BRADDON,  
Sydney.

## Clinical Record.

THE patient, I.C., aged fifty-three years, was first examined on October 12, 1944. He gave a history of excision of a rectal polypus eight months previously, the pathological report on which was "rectal polypus with possible early malignant change". Six months later the patient noticed a tumour in the lower part of the bowel in the region from which the polypus had been removed. A biopsy of this growth was taken, and the pathological report was "columnar-celled carcinoma". At this stage the patient was referred to the Radium Clinic of the Royal Prince Alfred Hospital, in the hope that, as the growth was low down and in a reasonably early stage, the rectum and sphincters might be saved. On examination, a hard tumour about 2.5 centimetres in diameter, and breaking down in the centre, was readily palpated and seen in the lower part of the rectum in the sinistro-posterior position, and sited well down in the rectal wall, extending just over the muco-cutaneous junction into the skin of the upper part of the anal canal. The tumour was somewhat, but not rigidly, fixed, and the examining finger could readily palpate its hard upper edge.

It was decided to treat the growth by a radon gold seed implant to a dose of 6,700r. Under spinal anaesthesia, extreme dilatation of the sphincters was gradually accomplished, and the rectal wall slightly prolapsed; excellent

exposure was thus obtained. A double circle radon gold seed implant was carried out under direct vision. The rectum was then firmly packed with "Vaseline" gauze, the pack being maintained by perineal pads and T bandages. This was done to prevent collapse of the treated area, and vitiation of the accurate distribution and dosage. The pack was removed after four days, and the bowels were opened by enema, after which the rectum was repacked. This treatment was continued for fourteen days, by which time the residual  $\gamma$  radiation in the seeds was reduced to negligible proportions. The patient remained only three weeks in hospital, but has been regularly examined ever since.

## Comment.

Sixteen months have now elapsed since treatment, and the result is most gratifying, as the patient is in an excellent condition, has gained six pounds in weight, has been at work ever since a short holiday following his discharge from hospital, and is living a normal existence. There was an entire absence of general irradiation proctitis, owing to the packing.

Locally, in the rectal wall, all that can be detected is slight scarring and tethering of the mucosa, whilst two of the seeds can be distinctly palpated. Symptoms, after a reaction for the first few weeks, are conspicuous by their absence. It is considered that the prognosis is at least as good as if the lower part of the bowel and the sphincters had been removed, and that, in all probability, in the absence after sixteen months of all signs of growth, local or remote, the patient will have no further trouble.

#### A CASE OF ABDOMINAL LYMPHANGIOENDO- THELIOMA OR PERITONEAL MESOTHELIOMA.

By IAN HAMILTON,  
Acting Honorary Surgeon to the Adelaide Children's  
Hospital,  
and  
J. B. CLELAND,  
Marks Professor of Pathology, University of Adelaide.

## Clinical Record.

H.J.R., aged eleven years nine months, was admitted to the Adelaide Children's Hospital on March 6, 1945. Three months previously he had had an attack of abdominal pain with distension and belching, lasting for one week. Apart from this he had been well and bright, although three weeks previously he had begun to grow tired and languid, having usually been active. He still ate and slept normally. Fourteen days before his admission to hospital his mother had noticed that his abdomen was swelling and that he was unable to do up his trousers or blouses. No vomiting or jaundice had occurred. His appetite was good, his bowels acted normally and his urination was normal.

On examination, the patient was a healthy-looking boy in no discomfort. His eyes, ears, mouth, heart and lungs were all clinically normal. His abdomen was distended, particularly on the right side, and there was a large elastic mass in the right side of the abdomen, extending from the left of the mid-line to fill the right hypochondrium, the right lumbar region and the right iliac fossa. The whole mass was dull to percussion and felt cystic in character, and it seemed as if there were three separate bulges towards the medial aspect, but continuous towards the lateral aspect. Rectal examination revealed no abnormality.

Certain investigations were carried out, with the following results. The Casoni test gave a negative result. A plain X-ray film of the abdomen showed that all the viscera were pushed over to the left by some right-sided mass. An excretion pyelogram revealed normal kidney outlines, but the whole of the right kidney was pushed to the right side and upwards, the appearance suggesting a right-sided retroperitoneal mass. A blood examination showed that the hæmoglobin value was 80% (Sahli) and

that the erythrocytes numbered 4,300,000 and the leucocytes 6,000 per cubic millimetre; and the differential leucocyte count showed that 62% of the leucocytes were polymorphonuclear cells, 3% eosinophilic cells, 27% lymphocytes and 8% monocytes.

It was thought that the mass was probably a retro-peritoneal sarcoma, so laparotomy was decided upon. This was performed on March 19, through a right central paramedian incision. A large mass about the size of a football was found, arising from the lateral side of the hepatic flexure of the transverse mesocolon and consisting of hundreds of cysts varying in size from that of a pea to that of a golf ball or larger, and containing clear, watery fluid. The omentum was also studded with a large number of similar cysts, particularly along its edge. The whole mass was delivered through the incision, and it was found possible to strip it from the transverse colon and mesocolon, after which it was excised complete. The bare area was then covered with peritoneum and sutured with catgut. The greater part of the great omentum was excised after ligation and the wound was then closed. Healing occurred by first intention, and the patient was fit to return to his home on April 3.

#### Description of the Cystic Mass.

The main mass consisted of a congeries of cysts of various sizes, the mass measuring about 9.5 by 6.5 by 2.5 inches (24 by 16 by 6 centimetres), and weighing 50 ounces (1,415 grammes). Some of the largest cysts measured from 1.0 to 1.5 inches (2.5 to 3.7 centimetres), and the smallest were about a millimetre in size; probably many microscopic cysts were present. The cysts

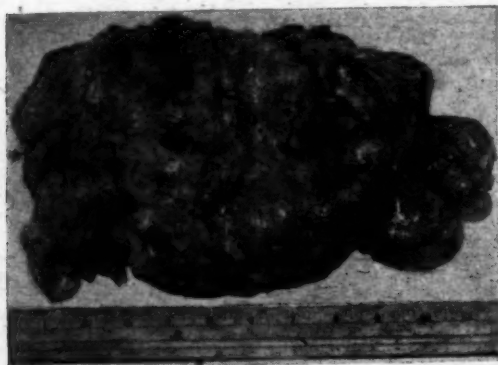


FIGURE I.  
The main cystic mass.

were thin-walled, with perfectly clear contents; the fluid had a specific gravity of 1.085 and contained 400 milligrammes per centum of protein, 610 milligrammes per centum of chlorides as sodium chloride, 6.0 milligrammes per centum of urea, and 0.11 milligramme per centum of sugar. Some pseudomucin was present; the albumin-globulin content was much the greater. Over the surface of the larger cysts small venules coursed. There appeared to be no connexion between adjacent cysts, and when a large cyst was opened, a number of convexities could be seen projecting through the wall, owing to the tension in adjacent cysts. Some of the small cysts felt quite tense. The mass consisted almost entirely of these cysts bound together by a certain amount of fibrous tissue.

The strip of omentum was about 16 inches long and was festooned with cysts, the largest about 0.5 to 0.75 inch (1.2 to 1.8 centimetres) in diameter; but most of them were small and like sago grains, and they were often associated in clumps, or a number of little cysts formed a nodular-looking group.

Microscopic sections were taken from what felt like firmer tissue between some of the cysts. This was per-

meated by numerous spaces of varying sizes, some small; the lining cells were in some places flat, especially in the larger cyst walls, but elsewhere the cells tended to be cubical. No unstriated muscle seemed to be present in the walls between the cysts. Some structures, evidently small blood vessels, had lining cells much like those in some of the cysts. The cyst lining did not suggest intestinal

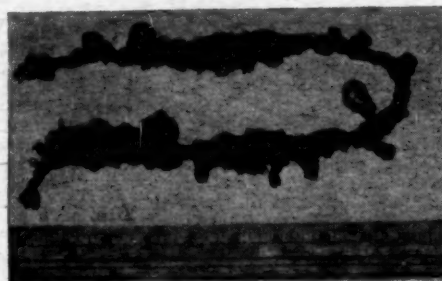


FIGURE II.  
Cysts in the omentum.

mucosa; on the other hand, the low cubical cells were not unlike the lining cells of the peritoneum, and one sometimes sees similar cells covering the surface of the ovary or dipping into irregularities on its surface. Amongst the cells lining one small cyst were a number of clear vacuole-like spaces. The stroma between the cysts was loose and sometimes almost myxomatous.



FIGURE III.  
Drawing of some of the small cystic spaces and part of a large one.

#### Comment.

The cyst-like condition may be either lymphangio-endotheliomatous or derived from the peritoneal lining or possibly from remnants of the Wolffian body. The question also arises whether it is a developmental anomaly or neoplastic in origin. Though an origin from lymphendothelium cannot be denied, it seems more probable that the condition is developmental, and that the spaces are lined with peritoneal cells. In fact, the spaces may be likened to multiple minute coelomic cavities if the condition is purely developmental, or if it is neoplastic, to the peritoneal

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lining cells, tending in the direction of their utmost developmental intention—that is, to line large spaces.

Ewing divides "peritoneal, mesenteric and omental cysts" into chylous cysts, enteric cysts, intraperitoneal cysts of nephrogenic origin and dermoid and teratomatous cysts. None of the descriptions of these agree with the cysts in our case, except the rare "serous cysts" referred to under the category of "chylous cysts".

#### Summary.

A description is given of a congeries of large and small cysts forming a large mass and independent smaller units, in the mesentery and omentum of a boy, aged eleven years. The cysts are believed to be of lymphatic origin (cystic hygroma type) or perhaps derived from the peritoneal lining cells, either from a developmental anomaly (ectopic, with attempts to form numerous small peritoneal cavities) or from neoplasia.

### Reviews.

#### GERMS IN MILK.

Most doctors realize how important a factor milk may be in spreading disease. The big milk-borne epidemic of typhoid fever at Moorabbin (Melbourne) in 1943 drew attention at that time to the danger. In that outbreak 440 persons were affected.

The third edition of a small book, "Bacteria in Relation to the Milk Supply", gives a general review of the subject. The subtitle labels the book as "A Practical Guide for the Commercial Bacteriologist". It is more than that, for the subject matter has an appeal to medical practitioners and health authorities.

The book covers a wide field. The author describes the methods of milk sampling, the causes of taints and abnormal conditions in milk, the isolation and identification of organisms from milk, the care and control of dairy apparatus, and the tests ordinarily used to assure safety of the milk supply. He also describes tests for the purity of water.

Many authorities in these days concentrate their attention on three tests—the methylene blue reduction test, the resazurin test and the phosphatase test. In the book the tests are clearly described. Properly applied, these tests cover all that is essential in the control of the milk supply for the community. Bacterial counts, as G. S. Wilson has shown, give no better help, and sometimes are faulty guides.

For the milk supply of cities and towns, pasteurization is now accepted as a necessary measure. Adequate pasteurization and the use of the three tests provide the essential safeguards. But, as the author emphasizes, pasteurization does not lessen the need for care in milk production. The rules are clear-cut and simple. Milk should be produced from healthy cows under the cleanest possible conditions. It should be cooled quickly and kept cool till it reaches the pasteurization depot. After being pasteurized, it should be bottled in sterile containers, and distributed in the cold state. Mr. Chalmers, in his book, shows the practical ways to assure a safe milk supply, and the reasons for the various measures are made clear.

This is a useful book, but some features of it will not satisfy the expert bacteriologist. Nomenclature—admittedly a difficulty in bacteriology—is not consistently handled. Many assertions are insecurely based: Is *Streptococcus salivarius* a pathogen? Is *Lactobacillus casei* "slightly aerobic"? Is the Rideal-Walker test any real help in estimating disinfectant efficiency? Do tubercle bacilli die in cheese? Do disinfectants (other than heat) destroy tubercle bacilli? Do *Bacterium coli* and *Bacillus welchii* often cause summer diarrhoea in infants?

The book has its weaknesses—it is not unique among books in that. The defects noted may not be grave and careful editing by an expert general bacteriologist would remove them. In future editions the author would do well to secure that collaboration.

The matter of safe milk supply for the people is important, and books of this kind can greatly assist milk companies

and their staffs. Education is so necessary. For large communities the day of small dairies has passed. Now is the time for large dairy farms, provided with good apparatus and utensils and proper means for their sterilization. Well-controlled depots for pasteurization on a large scale and good reliable control of the various steps in the heat treatment of milk are the other great needs. In the handling of milk, climatic circumstances play a big part. In this aspect, conditions in a warm country, as Australia mostly is, differs from those of the colder countries. Milk experts would find much help from a book on this subject by Australian experts; till that is written, this book by Chalmers is well worth while.

#### PSYCHOLOGY IN GENERAL PRACTICE.

It is rightly pointed out in the first article in "Psychology in General Practice", edited by Alan Moncrieff, that "the general lack of instruction in this subject that has hitherto marked the medical curriculum has been a handicap to many practitioners who would seek to understand it, for opportunities in general practice are great".<sup>1</sup> And, it may be added, these opportunities will be still greater in the future.

Provided the general practitioner, for whom the book is meant, has had some basic training in psychology, most of the contributions will be found to be excellent and practical; as these practitioners are in the minority, the publication would have been more useful with the addition of an article dealing with the first principles of psychology. Nevertheless the work will prove of value and assistance to those who have been and still are dissatisfied with the routine prescribing of sedatives to patients with symptoms the cause of which cannot be ascribed to any organic pathology. The various contributors offer a scientific approach to the general practitioner, although they clearly point out that time and patience are usually required for the deduction of causes and treatment of the simpler psychoneuroses.

Throughout the volume all contributors emphasize the value of the family doctor in the treatment of psychoneurotic conditions by virtue of his intimate knowledge of his patient's domestic and family background; armed with this, he is in the position of being able to treat patients suffering from simpler conditions himself; those with the more severe disturbances he will transfer to the specialist.

A most interesting and thought-provoking contribution by James Halliday on "Psychosomatic Medicine and the Rheumatism Problem" should interest all the profession. For a considerable time visceral neuroses have been recognized as a real complaint leading at times to actual pathological conditions. This contributor more than suggests the presence of somatic neuroses affecting fascia, muscles, joints *et cetera*; he, however, emphasizes, as do all the contributors, the need for a complete and exhaustive examination before a neurosis is diagnosed.

#### THE TISSUES OF THE BODY.

The second edition of Le Gros Clark's book incorporates research work of the past five years and provides a welcome introduction to findings which, for the general reader at least, would otherwise lie buried in journals for very much longer.<sup>2</sup> The plan of the book is closely similar to that of the first edition, and, although much new matter has been included, judicious editing has avoided any notable increase in bulk.

As might be expected in a production of the Oxford school, considerable attention is paid to wartime discoveries on the nutrition, degeneration and regeneration of muscle and nerve tissue. And among the most notable deletions is discussion of the "double innervation of striated muscle". Since the standard of this book is generally so high, however, it seems that most profit will accrue from some comment upon what appear to be rather astonishing lapses.

In the first place, the classification of joints is even more unsatisfactory than such classifications generally are; and not all synchondroses inevitably ossify as soon as the growth of the articulating elements is completed, for

<sup>1</sup> "Psychology in General Practice", edited by Alan Moncrieff, M.D., F.R.C.P.; 1945. London: Eyre and Spottiswoode Limited. 8½" x 5½", pp. 199. Price: 12s. 6d.

<sup>2</sup> "Bacteria in Relation to the Milk Supply: A Practical Guide for the Commercial Bacteriologist", by C. H. Chalmers, B.Sc. (Edinburgh), N.D.A.; Third Edition; 1945. London: Edward Arnold and Company. 7½" x 4½", pp. 279, with many illustrations. Price: 8s. 6d. net.

<sup>3</sup> "The Tissues of the Body: An Introduction to the Study of Anatomy", by W. E. Le Gros Clark, F.R.S.; Second Edition; 1945. Oxford: Humphrey Milford, Oxford University Press. 9½" x 6", pp. 400. Price: 21s. net.



example, the first costal cartilage. Scaphocephaly is not simply an abnormal elongation of the skull—it derives the name from the inverted boat-like appearance produced by median ridging and the flattened parietals. In the matter of the lymphatic system, certainly Aselli's "*De lactibus* . . ." was published in 1627, but the author made his initial discovery on July 23, 1622; in any case, we may question the propriety of assigning the honour of priority to Aselli when the lacteals were well known to the ancient Greeks, while the first good description of the human lymphatic system was given by Thomas Bartholin in 1652-1654. In referring to the suprarenal glands as "adrenals", Le Gros Clark is guilty of a *lapsus* incomprehensible in an anatomist; and is Addison's disease due to disordered secretion of adrenaline? As regards hairiness, while the Caucasians in general and the Australian aborigines in particular are certainly very hairy, surely the Ainu—also representatives of the Caucasians—are yet more so. In the nerve cell, the ultra-centrifuge has shown that the neurofibrils are entities as real as the chromatin granules. Myelination of the pyramidal tracts is not completed until eighteen months to two years after birth, not at birth, as the author infers. The statement that nerve degeneration does not cross a synapse (page 341) is contradicted by the discussion on transneuronal degeneration on page 372. In the discussion of cortical folding the author rightly emphasizes the importance of stresses set up where cortical areas of different thickness meet, but he gives the impression that this is the only mechanism involved, whereas, as is well known, sulci are frequently produced as axial folds within an area, for example, the retrosplenial sulcus in the *area striata*; further, many sulci are so unrelated to cortical formations that they can be regarded only as compensatory in nature.

One further point—we would have welcomed treatment of the reproductive system (a notable omission) on the same lines as the other systems in this book.

These criticisms do not in any way diminish our opinion that "*The Tissues of the Body*"—synthesizing as it does anatomy, histology, embryology, morphology, cytology, physiology and some biochemistry—is one of the most important and stimulating books yet published in the field of human biology. The student and teacher alike will find it a constant source of valuable, and generally authentic, information.

#### MEDICAL JURISPRUDENCE.

The publication of the eighth edition of Glaister's "*Medical Jurisprudence and Toxicology*" such a short time after its predecessor is ample evidence of its popularity.<sup>1</sup> That it should be undertaken during wartime and produced in such excellent form, in spite of partial destruction by fire, reflects the greatest credit on the author, his contemporaries and assistants, and the publisher.

Legal procedure and the medical acts are described only so far as they apply in Scotland and England. There are many differences in these respects in Australia, but readers will find much of value and interest despite this.

Many changes have been made in this new edition and many illustrations have been added. Some 59 of these, including photomicrographs, are in natural colour, and undoubtedly these greatly enhance the value of the text, particularly in the chapters on head injuries and on the examination of blood stains.

As in previous editions, identification is completely covered and the Ruxton case is supplemented by a short description of the Dobkin case and two other cases concerning portions of human remains.

Gordon's conception for the classification of deaths of medico-legal importance is incorporated in the chapter on asphyxia, but workers in the field of forensic medicine, and apparently the author, are not willing or likely to abandon the term asphyxia.

The author regards frostbite, immersion feet and trench feet as synonymous for all practical purposes, and in his description of these gives Ungley's opinion which was formed in an extensive study of the subject. New material has been added to the subject of wounds, including a short paragraph on the crush syndrome. One would have appreciated in this chapter the inclusion of blast injury rather than at the end of the book under war injuries. The chapter on examination of the blood has been rewritten to some extent and now

includes a paragraph on the Rh factor, the M and N factors and agglutinogens in the saliva. New material appears on the subject of strangulation. The conclusions of Denny-Brown and Russell on the causation and mechanism of concussion are an interesting addition to the subject of fracture of the skull. In the section on toxicology the inclusion of short descriptions of poisoning by toxic substances used in industry and the toxic effects of the sulphonamides is welcome in the light of modern experience. Considerable space is given to methods of estimating alcohol in body fluids and tissues. In view of the author's decision in a previous edition to omit methods of quantitative analyses as properly belonging to the province of the experienced chemist, it seems strange that alcohol estimation, a difficult procedure, should be described.

As in previous editions, there is a wealth of illustrative cases of great practical interest. It is certain that this is one of the most outstanding textbooks in the English language on medical jurisprudence.

#### NEUROPSYCHIATRY IN AVIATION.

BEFORE arriving at their system of selection of air crews and disposal of those who developed neurological and psychiatric disabilities on service, Dr. Ironside and Dr. Batchelor made a thorough study of flying conditions, which are discussed in the opening chapter of their book, "*Aviation Neuro-Psychiatry*".<sup>1</sup> Clearly without such knowledge no sound principles can be evolved. They point out that technical devices have reduced physical stresses. Anoxia, carbon monoxide poisoning, cold and acceleration may be responsible for diminution in mental alertness, if not "black-outs". The authors are of the opinion that there is a direct relationship between accident-proneness and a neurotic disposition. In the selection of personnel a study of the temperamental make-up is most important and a combination of "arm-chair", that is, laboratory and consulting-room tests, and observation of the candidate's behaviour in training is strongly advocated. The trainee's motives and his general conduct and special performance should all be taken into consideration. Only under the urgency of manpower in wartime should failures be given another chance. A chapter is devoted to flying confidence. In average cases a neuropsychiatric examination can be carried out in about one hour, though psychometric and aptitude tests performed by psychologists would not be included. The authors pronounced many men with abnormal electro-encephalograms fit to fly, basing their recommendations on a careful correlation of the graphs with the clinical findings. But the exclusion of *petit mal* attacks when the complaint is of some form of disturbed consciousness always calls for great clinical acumen. Ironside and Batchelor deprecate any attempt to regard as a special condition neurosis occurring in air crews, and they hold that the term "flying stress" should be applied to the environmental and physical stresses which are more or less peculiar to flying and not to any neurosis which may be unmasked by them. There is no mental illness which can critically be regarded as peculiar to flying. The medical officer should interview all flying personnel on the day of an accident whether injured or not. When those with evidence of nervous tension have appeared to recover from their nervous reaction after a good rest under sedation, they should forthwith fly as passengers a few times before being pronounced fit to resume normal duties.

The authors call attention to the neurotic airman's proneness to disorders of vision—complaints of photophobia, diplopia, blind spots, defective night vision. "What the legs are to the infantryman, the eyes are to the pilot."

The final chapter deals with prognosis for flying after various injuries and diseases. The authors found that men with closed head injury, developing fits within a few weeks of the injury, had a relatively good prognosis with regard to the development of later traumatic epilepsy, but medical officers should be cautious about returning such persons to flying duties even after a lengthy period of freedom from fits.

The work is, of course, devoted mainly to neurological and psychiatric problems in flying under war conditions, but the medical officer who has occasion to examine civilian pilots should pay attention to the experience and advice of the authors.

<sup>1</sup>"*Medical Jurisprudence and Toxicology*", by John Glaister, J.P., D.Sc., M.D., F.R.S. (Ed.); Eighth Edition; 1945. Edinburgh: E. and S. Livingstone Limited. 8½" x 5½", pp. 703, with many illustrations, some in colour. Price: 30s. net.

<sup>1</sup>"*Aviation Neuro-Psychiatry*", by R. N. Ironside, M.B. (Aberdeen), F.R.C.P. (London), and I. R. C. Batchelor, M.B. (Edinburgh); 1945. Edinburgh: E. and S. Livingstone Limited. 8½" x 5½", pp. 175. Price: 8s. 6d. net, postage 6d.

## The Medical Journal of Australia

SATURDAY, APRIL 6, 1946.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

### PEACE AND THE INDIVIDUAL.

No thinking man or woman of today can fail to take stock of the world in its restless state and to wonder why people, in the language of the prophet Jeremiah, cry: "Peace, peace; when there is no peace." Men and women ask whether humanity today has not seen enough of the effects of pride, of hatred and of violence, whether the peoples of the world have not paid enough in sweat and blood and anguish of spirit. We have been told that a sense of values and reasonableness are essential to civilization and in the past we have accepted the statement. But these attributes seem to have fled and we may with every reason ask whether our civilization has destroyed itself. The world may be passing from a stage of sensate culture, as described by Sorokin (see *THE MEDICAL JOURNAL OF AUSTRALIA*, November 7, 1942, page 423), to an ideational or idealistic phase. But if this is so we cannot afford to sit still and do nothing about it. If a change is to be effected it will be of benefit to humanity only as we welcome the change and try to lead it in what we believe to be the right direction. This matter has been discussed in the present issue by R. S. Ellery who writes from the point of view of a psychiatrist. It is fitting that the subject should be discussed by a psychiatrist, for its solution depends first of all on an attitude of mind and then on activity of that mind, striving with others focused in like manner towards a common end. Ellery does well to remind us that man has sought to examine and understand the nature of things before he has tried to understand himself and his reactions to his environment—he has "acquired knowledge without wisdom". It is the purpose of psychiatry to help man to gain wisdom. This, and indeed the fundamental role of psychiatry throughout the life of man, has not been realized by large numbers in the community, including many members of the medical profession. If this were not the case, it would not be necessary for Ellery to regard

the introduction of mental hygiene to the community as something to be accomplished with almost missionary zeal. Yet this is exactly what is needed. When Ellery refers to the need for psychological study of man's motives and his reactions to contemporary events, we shall realize the difficulty of this study if we try to determine our own motives and reactions. From this we may infer that we all have something to learn from a study of mental hygiene. We may also conclude that if we are prepared to learn what mental hygiene has to teach, we shall be in a position to do something about the appalling condition in which humanity finds itself.

The trouble about "doing something" is to know what to do. Neither the philosopher nor the militant social reformer can lay hand on any one process or method whose adoption will change chaos into order and bring contentment for Everyman where discord has held sway. Any change that comes must start among individuals and it must spread from one to another. Even Sorokin, with his recurring types of culture, demands decisive action from an individual. Albert Schweitzer, philosopher, theologian, musician and doctor of medicine, presents interesting views on the subject in his book "Civilization and Ethics", published first in 1923. He points out that the history of thought has always been written as a history of philosophical systems and never as a history of man's effort to arrive at a world-view ("Weltanschauung"). In the world we can discover nothing of any purposive evolution in which our activities can acquire a meaning. The ethical also cannot be discovered in any form in the world-process. The only advance in knowledge that we can make is to describe more and more minutely the phenomena which make up the world, and their course—to understand the meaning of the whole is impossible for man. "The last fact which knowledge can discover is that the world is a manifestation, in every way puzzling, of the universal will to live." Schweitzer shows that reverence for life, *veneratio vitae*, is the most direct and at the same time the profoundest achievement of man's will to live. Ethics, he states, grow out of the same root as world-affirmation and life-affirmation and are nothing but reverence for life. This gives man the fundamental principle of morality, namely, that good consists in maintaining, promoting and enhancing life, and that the destruction, injury and limitation of life are evil. The relation of groups of men to other groups and of one nation to another are fundamentally a matter of man's relation to his fellow. One man is separated from another and groups of men are separated from other groups by what they have or have not, by their relationships in the business or industrial world, by their political beliefs and by other factors that might be named. The ethic of the relation of man to man is described by Schweitzer in the light of his view on the reverence for life. The responsibility thrown upon us here is so unlimited as, in Schweitzer's words, to be terrifying. Here man has to come to terms with the absolute ethic of self-devotion. Each of us has to decide in accordance with our responsibility how much of life, possessions, rights, happiness, time and rest he must devote to others and how much of them he may keep for himself. In any matter of wealth, of possessions or even of life itself "reverence for life is the highest court of appeal". Reverence for life is indeed "an inexorable



creditor"; to everyone, in whatever state of life he finds himself, it does this: "It forces him ever and again to be inwardly concerned with all the human destinies and all the other life-destinies which are going through their life course around him, and to give himself, as man, to the man who needs a fellow-man. . . . It demands from all and every that they devote a portion of their lives to their fellows." This means that no man has discharged his whole duty when he has finished his accustomed work. But there is more than this. There is a supra-personal responsibility. Every man may find himself in a situation in which he is responsible not for himself only, but for some undertaking, and then he is forced into decisions which conflict with personal morality. The more extensive a man's activities, the oftener he finds himself in the situation of having to sacrifice something of his humanity to his supra-personal responsibility. This raises important points—for example, the encroachment of the ethical on the unethical by the acceptance as ethical of a violation of reverence for life. There can be no such thing as a "relative ethical". In every supra-personal responsibility we must struggle to preserve as much humanity as is possible. Men act too often, whether in business or politics, not as men, but as executives of general interests. "Hence there is no longer among us any trust in a righteousness lighted up with human feeling. Nor have we any longer, any real respect for one another." In this connexion Schweitzer concludes that: "Only through our struggles for humanity can forces which work in the direction of the truly rational and expedient become powerful, while the present spirit and temper prevail." It is no wonder that he holds that the collapse of civilization has come about because ethics have been left to society. Civilization can be renewed, he declares, only if ethics become once more the concern of thinking human beings and if individuals seek to assert themselves in society as ethical personalities.

This brings us back once more to the individual to whom Ellery would teach the elements of mental hygiene, the individual, in other words, who will be in such a prepared mental state that he will be able to think along ethical and humanistic lines. This individual will be ready for the "education for life" to which Ellery refers. Critics may complain that writings such as those of Schweitzer, of Sorokin and of Ellery are so idealistic that they will not bear fruit. No one has yet been able to indicate any method of human regeneration that holds out promise for the future other than by regeneration of the individual. No adoption by the community at large of any "ology" or "ism" will do more than effect a change of emphasis of certain forms of injustice and hardship. Most of what has been written may be included under the general heading of humanism. But really we should go further than this and bring the name of God into the picture. Sorokin declared that man needed a complete change of mentality and attitude in the light of the Sermon on the Mount. It is easy for men to write and to declare that the Sermon on the Mount has been extant for more than two thousand years and to ask why it has not been universally adopted. Those who ask this question should also ask what the world would be like today if the Sermon on the Mount had never been preached. We cannot escape the thought that humanity's hope for the future lies with the individual and with the individual alone.

## Current Comment.

### FUTURE HEALTH SERVICES IN GREAT BRITAIN.

DURING the last few days Australian newspapers have contained cabled reports of some of the discussions that are taking place in Great Britain regarding the future health services. At this distance it is a little difficult to keep Australian members of the Association informed of what is taking place, but it is hoped that before long a copy of the National Health Service Bill will be received. In the meantime readers will be interested in some of the statements made by Dr. H. S. Souttar, President of the British Medical Association, in an article published in *The Sunday Times* (London) of March 3, 1946. For the information of the public, Dr. Souttar sets out certain fundamental principles adopted by the Association. He writes: "We are opposed, in the public interest, to any form of service likely to lead the profession as a whole becoming full-time salaried servants of the State, and consider that the doctor should remain free to practise his art and to care for his patients without State interference. The citizen should be free to choose and to change his doctor, and through him to obtain any consultant or hospital service he may require, and he should be free to do this either through the provided service or independently, as he may desire. Every registered doctor should be free to share in the service where and how he may desire, and should not be the subject of State direction. The hospital service should be coordinated over large areas, each hospital retaining its domestic autonomy, while on the coordinating councils and all other administrative bodies in the service there should be full medical representation."

Dr. Souttar goes on to remark that these principles affect every individual in the country in the most intimate relations of his life. Unless they are accepted in any proposed service, the aims of the profession to make available to every person all necessary medical services cannot be achieved. Dr. Souttar discussed the national health insurance type of practice which is carried on in England, and said that as far as any one of the complaints made about it had any foundation they were chiefly due to shortage of doctors. To his mind the real problem was to attract more of the best young brains in the country into medicine. This would not be possible if the traditions of the profession were undermined. For some reason the Government had made up its mind that the sale of practices was immoral. This seemed a curious confusion of ideas and did not give much credit for intelligence to the ordinary patient, who was far from being bought and sold and who was perfectly free to choose any doctor and to change him as often as he liked. According to the reports in the Press, the hospitals were to be taken over, lock, stock and barrel, and the whole of their endowments were to be confiscated. This was an astounding proposition, and if it went through, Dr. Souttar failed to see how other endowments could expect to survive—the great city corporations and "those homes of frugal learning, the Colleges of Oxford and Cambridge", might well look to their investments. All would agree that there should be a close coordination of hospitals and that they should have the financial support and security which were vital to their work. Their annexation and the confiscation of their property was a very different matter, as was also the imposition upon them of a control in which they had no choice. The services of hospitals were prompted by a devotion which the State could never understand and for which it could never pay, but it could pay a cash value which would enable the hospitals to carry on and to develop their work without the constant worry of finance.

In the *British Medical Journal* of March 9, 1946, the Council of the Association announces the establishment of an Emergency Guarantee Fund to further the cause of the medical profession in any major dispute which may occur between the Government and the medical profession in connexion with the present proposals. The fund will



be divided into two parts. The first part will be for the purpose of meeting administrative propaganda and allied expenditure. Part two of the fund will in addition be used for the compensation of individual practitioners who, because of their adherence to the cause of the profession, suffer exceptional financial hardship. Already the Association has guaranteed a sum of £100,000 for the first part of the fund. The members of the profession in England have been asked to contribute at least £25 to the fund.

The leading article of March 9 in the *British Medical Journal* ends with the following two sentences: "If the new health service is to take proper shape and is to provide for the medical needs of the people of Great Britain, the Government must have the willing cooperation of the medical men working in it. It is to be hoped that the bill will be so framed as to make this possible, and so avert a costly and bitter struggle which, whatever the outcome, will leave behind it a sense of frustration and discontent."

### IS CARBON MONOXIDE METABOLIZED IN THE BODY?

THE fate of carbon monoxide admitted to the blood stream and combined with hæmoglobin has considerable physiological, clinical, hygienic and medico-legal interest. The main theory of J. S. Haldane's technique in measuring blood volume and in examining the entry of oxygen into the lungs rested on the assumption that "CO is not oxidised or otherwise decomposed in the human body . . . CO passes in by the lungs and passes out by the lungs without there being the smallest loss".<sup>1</sup> Haldane founded this hypothesis on experiment, and though his ideas concerning the secretion of oxygen into the blood by the alveolar wall have been abandoned, his conclusions regarding the chemical stability of carbon monoxide in the living body have been accepted. When in 1932 Fenn and his collaborators showed that carbon monoxide could be oxidized to carbon dioxide by frog's muscle, the certitude of Haldane's conception was challenged.<sup>2</sup> It is true that in the Fenn experiments carbon monoxide constituted 80% of the atmosphere to which the muscles were exposed, whereas in the human body the breathing of 0.1% of carbon monoxide in ordinary air can be lethal, and it is just to these low concentrations that practical considerations are confined. That further experiments should be conducted with carbon monoxide breathed by human beings in sublethal concentrations became advisable. F. J. W. Roughton and W. S. Root, of Columbia University, carried out investigations which should settle this question.<sup>3</sup> By using an indirect method of quantitative estimation they were able to measure with a near approach to complete accuracy the carbon monoxide in the expired air. It was found that in normal men, whether breathing oxygen or air, the carbon monoxide found in the expired air only averaged 60% to 70% of that currently lost from the blood during the first hour after the carbon monoxide administration; if, however, the subjects continued to breathe oxygen for four hours after the carbon monoxide administration, about 96% of the carbon monoxide initially absorbed by the subject was recovered in the expired air over this longer period. The authors contend that there is no significant loss of carbon monoxide through the skin, sweat, urine or faeces or by oxidation to carbon dioxide or by union with water to form formic acid. Some carbon monoxide can be held temporarily by hæmoglobin-like pigments such as that in red muscle or by stagnant red cells in spleen or bone marrow, but this is eventually dissociated and reenters the blood stream and so is carried to the lungs, where it escapes.

The same authors in conjunction with C. A. Tobias, J. H. Lawrence and M. I. Gregersen, have employed radioactive carbon in carbon monoxide to trace the distribution

of this gas through the body.<sup>4</sup> If oxidation occurs in the body, then radioactive carbon dioxide should be found in the expired air. The results achieved by this method indicate that of the small amount of carbon monoxide not accounted for in the expired air, less than 0.1% was oxidized to carbon dioxide. Experimental error may explain this mere trace, so that oxidation to carbon dioxide can in effect be excluded. One very interesting result of this "tagged" carbon research was that in organs such as muscles where there is an active circulation the carbon monoxide, as might be expected, disappears *pari passu* with the loss from the lungs; the same was found with the spleen, indicating that there is not the pooling which Barcroft showed to be present in dogs. Another significant finding was that the liver has exceptional powers of holding carbon monoxide and releasing it slowly. The authors are inclined to believe that the facts can best be explained by the existence of the pseudohæmoglobin of Barkan, an intermediate breakdown product between blood hæmoglobin and bile pigment, having ten times the affinity for carbon monoxide that hæmoglobin possesses.<sup>5</sup> Further experiments including the perfusion of livers of laboratory animals with blood containing "tagged" carbon monoxide are promised.

### AN EXPERIMENTAL STUDY ON PANCREATIC SECRETION AND DIVISION OF THE PANCREAS.

A SEARCH of the literature in recent years will show that much attention has been paid to the surgical removal of carcinoma involving the head of the pancreas and the peripapillary region of the duodenum. Most of the papers have dealt with the technical problems presented in this condition. The chief cause of the trouble is, of course, the fate of the pancreatic stump after the pancreas has been divided. H. G. Smithy, H. R. Pratt-Thomas and L. M. Mace, in reporting an experimental study on the reestablishment of pancreatic secretion into the intestine after division of the pancreas,<sup>1</sup> state that the pancreatic stump in surgery of this region has generally speaking been handled by one of two methods—occlusion by inverting sutures, with or without ligation of the duct of Wirsung; or some form of pancreatico-enterostomy in which the stump is implanted into a segment of intestine. With the first method the inverting sutures are likely to be digested with leakage of the pancreatic juice and its serious sequelae. In regard to the second method, the question has been raised whether reimplantation of the pancreatic duct is necessary. Smithy and his co-workers are among the large number of observers, including Whipple, who believe that the pancreatic juice should be preserved. They have experimented with a method which is followed by the formation of a fistula, though an opening is not made at the time of operation into the lumen of the jejunum. Dogs were used for the investigation. In fifteen animals the pancreas was divided at the junction of the uncinate process and the body, and the relation of the body with the duodenum was not disturbed. The exposed and divided surface of the pancreatic body was closed by interrupted sutures. The uncinate duct was allowed to retract into the parenchyma and the cut surface of the uncinate stump was then buried in an incision made into the wall of the jejunum. This incision extended down to, but did not divide the mucosa. Seven animals were operated on in much the same way, except that the uncinate duct was isolated and dissected free and the protruding end was tied with a crushing ligature of fine catgut. One end of the ligature was passed through the submucosa and the crushed duct was tied firmly against the mucosa. In fifteen of the animals spontaneous fistula formation occurred. No peritonitis occurred and no external pancreatic fistula developed. There were two cases of severe acute pancreatitis. This method may possibly be applied in human surgery.

<sup>1</sup> *Journal of Physiology*, Volume XX, 1896, page 497; also in book "Respiration", 1922.

<sup>2</sup> *American Journal of Physiology*, Volume CI, 1932, page 24; also Volume CII, 1932, page 379.

<sup>3</sup> *American Journal of Physiology*, Volume CXLV, 1945, page 239.

<sup>4</sup> *American Journal of Physiology*, Volume CXLV, 1945, page 203.

<sup>5</sup> *Deutsche medizinische Wochenschrift*, Volume LXIV, 1938, page 638.

<sup>6</sup> *Archives of Surgery*, October, 1945.

## Abstracts from Medical Literature.

### PATHOLOGY.

#### Malignant Paraganglioma.

M. MONNEROT-DUMAINE AND T. MAROUN (*Revue médicale française du Moyen-Orient*, March, 1945) report a case of malignant paraganglioma with generalized metastases. The patient was a medical officer, aged fifty-five years, who first reported the presence of a tumour the size of a pigeon's egg above the left clavicle. The only other abnormalities detected were loss of weight and fatigue. The tumour regressed in size, and the patient left hospital. Two months later he returned, with slight jaundice, elevation of temperature and a nodule the size of an almond in the epigastrium accompanied by a smaller nodule. Exploratory laparotomy was performed. Multiple neoplastic nodules were found infiltrating the peritoneum and especially the gastro-colic ligament. An enormous mass lay behind the stomach and below the pancreas; it appeared to extend to the spine. The great omentum had disappeared, and the vessels of the abdominal cavity were much dilated. Histological examination of a piece of tumour tissue from the peritoneum revealed that the tumour had the main characteristics of a paraganglioma. The patient contracted pneumonia, from which he recovered; he died five and a half months later, having suffered severely from intractable pain. Radiation therapy appeared to have no effect on the tumour. No glycosuria or albuminuria was present. The urea concentration of the blood and the glucose content of the blood were normal; the only slight deviation from normal in the blood was the presence of a relative polynuclear leucocytosis and a minor degree of eosinophilia. Neither the Kahn nor the Wassermann test produced a reaction. The arterial tension was not increased. In the last days of the patient's life considerable pigmentation of the abdomen appeared, more pronounced in the right iliac fossa and at the level of the spleen; scattered unpigmented spots were present. The skin was wrinkled, but did not present the characteristics of *acanthosis nigricans*. The authors discuss in detail the autopsy findings and the results of histological examinations.

#### The Pathology of Trench Foot.

NATHAN B. FRIEDMAN (*The American Journal of Pathology*, May, 1945) presents a report of the morphological changes in fourteen recent cases of trench foot. He reaches the conclusion that all injuries resulting from exposure to low temperatures, exhibit a common pattern and result from a similar train of events. The essential early change is a disturbance in the circulatory mechanism; the consequent stagnation of blood leads to thrombosis and, subsequently, to gangrene, which in many ways resembles ordinary peripheral ischaemic necrosis complicated by secondary infection, but has certain unusual features. Particular attention has been called to the occurrence of agglutinative thrombosis, profound changes in the

fat, and neuromuscular and osseous alterations. The delayed sensitivity to cold which follows apparent recovery may be caused in part by the damage to the subcutaneous panniculus and is certainly related to the occlusive peripheral vascular disease. Further morphological studies can contribute to an understanding of the pathogenesis of trench foot. Investigation of the early changes in the myelin sheaths and the fat of the subcutaneous panniculus will determine whether tissues rich in lipid are especially sensitive to cold. Detailed examination of the sympathetic fibres which supply blood vessels and of the arterio-venous anastomoses will decide whether the initial lesion is vascular or neural.

#### Subacute Bacterial (Streptococcus Viridans) Pulmonary Endarteritis.

ALFRED E. RHODEN (*The American Journal of Pathology*, May, 1945) reports a case of *Streptococcus viridans* endarteritis of the stem of the pulmonary artery. No changes were found in the heart and great vessels to account for the atypical localization of the vegetations. The vegetations in the pulmonary artery consisted, to a large extent, of necrotic tissue arising from the vessel wall. This is in accordance with the observation that the vegetations in endocarditis are derived largely from tissue of the valves. Observations in this case suggest the inception of the vegetative lesions from the endothelium. The atypical localization of the vegetations resembles that of the lesions encountered with the more aggressive organisms of acute endocarditis. This suggests an unusual virulence of the *Streptococcus viridans* in this case. However, the appearance of the lesion and other important clinical and pathological findings are those usually found with subacute bacterial endocarditis. The rarity of atypical pathological processes of the kind reported by the author emphasizes the importance of mechanical stress and of predisposing lesions for the localization of *Streptococcus viridans*.

#### Sweat Gland Tumours of Vulva.

ACCORDING to Emil Novak and R. R. Stevenson (*American Journal of Obstetrics and Gynecology*, December, 1945), the sweat gland tumours of the vulva constitute a relatively rare but highly interesting group. Clinically they present as small and innocent-looking growths on or near the vulva, but to one not familiar with their histological appearance the microscopic picture is apt to be rather startling, and perhaps to lead to the diagnosis of adenocarcinoma. However, in only one case in the literature, that of Elchenberg, has there been apparently unimpeachable evidence of malignant change, both clinical and microscopic. All other tumours, including the fifteen tumours reported by the authors, have been clinically benign, and all have been cured by simple excision. Granted that the characteristic microscopic picture of these growths might well in other tissues lead to the diagnosis of adenocarcinoma, there would seem to be no justification for applying the term adenocarcinoma to these notoriously benign sweat gland tumours. It is entirely possible, and perhaps even

probable, that some instances of the rare primary adenocarcinoma of the vulva may be of sweat gland origin, as in the two cases of this group the authors have included in their paper. Such an origin, however, is difficult to establish. The histogenesis of these sweat gland tumours is thoroughly discussed in this paper, and the suggestion is made that the apocrine gland derivation of these growths has probably been over-accentuated.

#### A Comparative Study of the Pathology of Scrub Typhus (Tsutsugamushi Disease) and Other Rickettsial Diseases.

ARTHUR C. ALLEN AND SOPHIE SPITZ (*The American Journal of Pathology*, July, 1945) have studied the histological preparations and protocols of 78 cases of scrub typhus (tsutsugamushi disease), 24 cases of epidemic (louse-borne) typhus, 12 cases of Rocky Mountain spotted fever, and the sections of lungs of two cases of American "Q" fever. The primary lesion, or eschar, is considered to be provoked by the combined action of the secretion of the larval mite and the inoculated rickettsiae. It is suggested that the absence of the eschar in certain instances of scrub typhus may be due to variations in cutaneous immunity. Interstitial pneumonitis of a marked degree is common in scrub typhus in contrast with epidemic typhus and Rocky Mountain spotted fever. The histological picture of the interstitial pneumonitis of scrub typhus is indistinguishable from that of "Q" fever, rheumatic fever, toxoplasmosis and viral pneumonia. It is concluded that the amount of hepatic damage as noted histologically does not warrant the presumption that hypoproteinaemia is due to hepatic insufficiency. Early, acute, diffuse glomerulonephritis is common in scrub typhus, epidemic typhus and Rocky Mountain spotted fever. The indirect role of the rickettsiae in the pathogenesis of the glomerulonephritis is indicated. The focal encephalitis or nodule of scrub typhus is qualitatively similar to that of epidemic typhus and is in contrast to the "microinfarct" of Rocky Mountain spotted fever. The nodules of scrub typhus and epidemic typhus are practically limited to the grey matter, whereas the encephalitis of spotted fever involves the white matter preponderantly. Contrary to the generally held impression, there is, according to the authors, a sparsity of histologically evident vascular damage in scrub typhus. Arteritis is exceedingly slight in scrub typhus in contrast with epidemic typhus and Rocky Mountain spotted fever. Accordingly, it is suggested that the designation "diffuse vasculitis" when applied to scrub typhus represents an oversimplification not justified by the morphological evidence. The authors conclude that the peripheral circulatory failure in patients with rickettsial diseases is a complex phenomenon which cannot be explained solely on the basis of morphological damage of vessels. The contributory role of the adrenal gland in the circulatory failure is suggested. The evidence of lymphoblastic origin for the cells characterizing the interstitial infiltrate is presented. The identification of the large "basophilic macrophage" with the "acute splenic tumour cell" is suggested,



and the evidence pointing toward the association of these cells with an allergic response is given. Reasons are presented for regarding the rickettsial diseases from a broader pathological point of view than that of diffuse vascular diseases. Emphasis is placed on the importance of the indirect, possibly toxic, but more likely hyperergic, effects of the rickettsiae, on the basis of certain histological responses which are regarded as strongly presumptive evidence of the action of allergens. These responses include fibrinoid degeneration of collagen, the necrosis of lymph nodes and spleen, the predominance of the basophilic macrophage and associated cells, and the acute diffuse glomerulonephritis.

### MORPHOLOGY.

#### Regeneration of Visceral and Somatic Nerves.

S. A. SIMPSON AND J. Z. YOUNG (*Journal of Anatomy*, April, 1945) state that in a normal nerve each function is subserved by fibres of a particular range of size. Although it is not clear to what extent functional efficiency is dependent on fibre diameter, it seems certain that gross abnormalities following degeneration and regeneration, such as a great reduction in the size of the somatic motor fibres, must produce a corresponding functional derangement, even if the connexions are reestablished correctly. The results submitted by the authors show that the control of fibre diameter in a regenerating nerve is exercised by at least three factors: (a) the diameter of the central fibres, (b) the size of the peripheral tubes, and (c) the nature of the terminal fibre connexions made, that is, whether with their end-organs or not. Nerves without terminal connexions become filled with many and small nerve fibres. When fibres grow out from somatic nerves into the non-medullated anterior mesenteric nerves, medullated fibres are formed in the latter. Such fibres are, however, of smaller diameter and have thinner myelin than those formed after union of a somatic with a somatic or a splanchnic nerve. When a somatic nerve containing large medullated fibres is united with the splanchnic nerve, containing small medullated fibres, the new fibres produced in the splanchnic nerve are of diameter similar to that produced in a somatic peripheral stump with similar terminal connexions. The large central fibres can therefore inflate the smaller peripheral tubes. The size of new fibres is therefore controlled partly by the size of their parent fibres, but very small Schwann tubes in the peripheral stump have a restrictive influence on fibre growth. The non-medullated fibres of the anterior mesenteric nerves do not produce medullated fibres when made to grow into the Schwann tubes of a somatic nerve.

#### Regeneration of Skin.

G. H. BISHOP (*American Journal of Anatomy*, March, 1945) studied the regeneration of connective tissue of the derma after removal of or injury to the superficial layers of the skin. Skin was removed from the forearm to various depths by cutting and by

applying barium or sodium sulphide. The deeper the removal of derma, the slower was the epithelialization, and the greater the hyperplasia of epithelium. Full thickness regeneration of derma occurred unless destruction included the reticular layer of the skin. Scar formation occurred when removal was sufficiently deep to destroy the bases of hair follicles. Skin removed five successive times from the same area at intervals of three weeks, without inclusion of significant depths of the reticular layer, regenerated to full thickness and normal texture without scarring. If derma is removed down to the reticular layer, granulation tissue regenerates readily from the connective tissue about hair follicles. This tissue is similar to that of the papillary layer which appears to dip down with the follicles through interstices in the reticular layer. If the removal is so shallow that a sheet of papillary tissue remains, regeneration takes place evenly over the surface. When the papillary layer is removed coarse mounds of granulation develop at the sites of follicles, even if their epithelial bases have been destroyed chemically. The fine structure of the resultant granulation tissue is the same, regardless of depth of removal. Epithelium heals the wound surface only after granulation tissue has matured to a stage permitting implantation of migrating epithelial cells. The latter are derived both from marginal epithelium and from remaining hair follicles. Before maturation of granulation tissue, a sheet of epithelium may cover an area precociously, without true healing, growing as a free lip and without implantation and rete formation. From these and other observations the author concludes that some constituent of the normal papillary layer and of extensions of similar tissue pertaining to hair follicles, is able to check the course of development of granulation tissue at the stage of normal derma. If this constituent has been removed in deep wounds, the process progresses to fibrotic scar tissue.

#### The Cell Content of Synovial Fluid.

D. V. DAVIES (*Journal of Anatomy*, April, 1945) states that investigations on the cell count and cytology of normal synovial fluid are scanty, and reports results of an investigation in a large series of cattle, sheep and horses. Counts of nucleated cells in both appendicular and axial joints of cattle, sheep and horses are recorded. Significant variations are shown to exist between axial and appendicular joints, particularly in cattle and sheep. The differences in nucleated cell content from joint to joint in the different species are related to the movement at the joint as regards frequency, extent and smoothness of control. High nucleated cell counts generally occur in highly viscous fluids in joints characterized by freedom from disease and degenerative changes. Red blood cells do not normally appear in synovial fluid. Their presence in small numbers is generally attributable to contamination during aspiration. Haemorrhages occur comparatively easily into joint cavities, a fact which is to be correlated with the vascularity at the synovial surface. The younger animal is the more susceptible to this type of injury. Clasmotocytes and monocytes are the predominant cells

in synovial fluid. Polymorphonuclear cells are few in number; if more than an occasional polymorphonuclear cell is found, the fluid must be regarded as abnormal. It is probable that the differential cell count varies from joint to joint and with the functional state of a particular joint. It is probable that species variations, unrelated to movement, also exist. Confirmation of this involves comparison of the joint fluids after adequate immobilization.

#### Conducting System in Human Heart.

E. W. WALLS (*Journal of Anatomy*, April, 1945) dissected twenty human hearts to expose the auriculo-ventricular node, the auriculo-ventricular bundle and its limbs. Doubt has recently been expressed by certain workers regarding the presence of the auriculo-ventricular node and bundle in the human heart, and there is a lack of convincing photographs of dissected human specimens. The present author states that in eighteen hearts the bundle was found below the *pars membranacea septi* under the septal cusp of the tricuspid valve. The right limb could be exposed in part in most of the hearts; in some, portions could be seen through the endocardium, and in two the entire length of the right limb stood out clearly without dissection. The left limb was difficult to expose and varied in its method of origin. The auriculo-ventricular node was dissected as a demonstrable entity in five hearts, in each of which the nodal artery from the right coronary was found.

#### The Seventh Cranial (Facial) Nerve.

C. VAN BUSKIRK (*Journal of Comparative Neurology*, June, 1945) comments on the considerable disagreement among authors on the facial nerve complex and submits results of a quantitative study of this nerve based on material from 13 cats, 25 dogs and 37 humans. Counts are given of the number of cells in the facial nucleus and the number of myelinated and unmyelinated fibres in the seventh nerve central to the ganglion, distal to the ganglion, from the greater superficial petrosal nerve and from the *chorda tympani*. Sex or laterality has no influence on the number of cells in the nucleus, and except during the first year age has no influence. The author concludes that it is probable that some cutaneous sensory fibres are present in the facial nerve and that the greater superficial petrosal nerve does not participate in the conduction of taste impulses. There is nothing to indicate that the facial nucleus is not the sole origin of the motor fibres to the muscles of facial expression. A mixing of vestibular nerve fibres and the *nervus intermedius* was observed in sixteen dogs and one human specimen.

#### The Effect of Interference with Blood Supply on Nerve Regeneration.

P. BACSICH AND G. M. WYBURN (*Journal of Anatomy*, Volume LXXIX, April, 1945) find in their experiments that regenerating nerves are not affected by the interference with their blood supply, and these results are in keeping with previous findings of the authors that there is no significant difference in the vascular pattern after the regional nutrient arteries are cut.



## British Medical Association News.

### NOTICE.

THE General Secretary of the Federal Council of the British Medical Association in Australia has announced that the following medical practitioner has been released from full-time duty with His Majesty's Forces and has resumed civil practice as from the date mentioned:

Dr. E. H. Goulston, 201, Macquarie Street, Sydney (April 1, 1946).

## Medical Societies.

### MELBOURNE PÆDIATRIC SOCIETY.

A MEETING of the Melbourne Pædiatric Society was held on October 10, 1945, at the Children's Hospital, Carlton, Melbourne. DR. H. DOUGLAS STEPHENS, the Acting President, in the chair. Part of this report appeared in the issue of March 30, 1946.

#### Premature Union of Epiphyses.

DR. RUSSELL HOWARD showed a female child, aged thirteen years, with premature union of the epiphyses. Epiphyseal union was complete in the region of the hips, elbows and ankles, whilst it was almost complete at the knees, shoulders and wrists. A symmetrical and bilateral bony defect was present on the ulnar side of the lower end of the radius. This interfered with attachment of the triangular ligament and allowed the proximal row of carpal bones to become sharply angulated at the lunate, this bone projecting almost between the radius and ulna. The symptoms were pain in the wrists and elbows of ten months' duration. There was considerable limitation of movement in these joints, *cubitus valgus* was present and the humerus was short on each side.

DR. KEITH HALLAM said that he could not add much to what Dr. Howard had said. Ossification did occur earlier in Australian children than in European children. Not infrequently he had seen perfect ossification of the bones at the ankles and to a lesser extent at the knee in girls aged fourteen or fifteen years. It was a different matter at the elbow, as the epiphysis did not appear till late at this site. At the wrist joint in this case gross dystrophy had resulted, with broadening of the ends of the radius and shortening of the radius on one side. Whether something like bilateral osteochondritis had occurred, or whether the condition was of vitamin-hormonal origin must remain speculative. Pain in these cases might result from the unusual strain thrown on muscle tendons.

LIEUTENANT-COLONEL JOHN COLQUHOUN said that he was anxious to return to the society to listen and learn, as well as occasionally to come to grips in a friendly manner with some of his colleagues, with whom he had enjoyed many differences of opinion, especially in the interpretation of X-ray films. With regard to the cause of pain in such cases as that under discussion, Colonel Colquhoun said that he could mention many instances of tendon strain not associated with pain—for example, many cases of *genu valgum*. Long-standing contracture of muscle might cause pain, as also might lesions causing decalcification and sclerosis. Colonel Colquhoun said that he had never encountered a case comparable with that under discussion, in which so many epiphyses had united at an early age. A glandular disturbance might be a possible basis for the condition.

DR. J. N. BURGESS said that the case was interesting, especially from the aetiological viewpoint. In his opinion, the condition did not fit into the picture of glandular dysfunction. The child was short, but not abnormally so. A metabolic upset with changes in calcium metabolism especially might be an explanation. He could not think of any reason for the areas of decalcification shown. He asked if Dr. Howard would furnish a cause for them.

DR. BRUCE HALLOWS said that he was struck by the gross degree of *cubitus valgus*, the tenderness of the muscles arising from the common flexor origin and the severe degree of limitation of pronation and supination. These points led him to believe that the condition might be some vague myostic lesion producing at this stage dystrophy at the lower end of the radius. He thought the pain was of muscular origin rather than from an osseous source.

DR. H. DOUGLAS STEPHENS said that he could remember an analogous case. The child had been injured at birth. A

wedge-shaped area had developed near the knee, well into the shaft of the femur. Some rarefaction was present, similar to that in the present case. The affected limb was almost two inches shorter than the other, but was otherwise normal. Dr. Stephens wondered whether this child might have had her arm pulled during delivery, strain being caused at the elbow.

DR. HOWARD, in reply, said that he was pleased that the case had aroused so much discussion. With regard to the pain, he was sure it was not of osseous origin. The only joints in which pain was occurring were the abnormal joints or those with considerable limitation of movement, especially the left elbow and wrist joints. Dr. Howard said that he thought that in the attempt to perform normal movements certain ligaments which were not mobile beyond a certain point were overstrained. It would be interesting to follow up the patient to see whether any arthritic changes developed subsequently. One would expect arthritic changes in the wrist joint, as this joint was grossly abnormal; but at present there was no evidence of such changes. It had been pointed out that one reason for early ossification of the epiphyses was premature sexual development. This existed in this case, but Dr. Howard said that he could not see how it furnished an adequate explanation for the changes at the wrist joint.

#### Sudeck's Post-Traumatic Bone Dystrophy.

DR. BRUCE HALLOWS showed a female patient, aged thirteen years and ten months, whose complaint apparently dated back to July, 1944, when she had been struck by a hockey stick over the right ankle joint. She had walked home after this, though the injury was painful. The following morning she had completely recovered. Six months later, on arising from bed, she experienced pain over the same region. Soon afterwards the limb became swollen over this area, and the pain increased in severity, especially if she attempted to walk. Poultices and hot bottles gave little relief. On January 13, 1945, an incision was made over the affected site by her local doctor. Three weeks later the pain was still severe and the incision had not healed. Three weeks after this, though there had been some amelioration of the pain, she was brought to the out-patient clinic. Examination revealed a serous discharge from the incision behind the right medial malleolus. The ankle joint was swollen and the limb appeared to be rather dusky. An X-ray film taken at this time revealed rarefaction at the base of the medial malleolus suggestive of osteitis in this region. Four months later X-ray examination revealed considerable disorganization of the talus and the upper surface of the *os calcis*, with narrowing of the joint space of the ankle. The body of the talus appeared to be flattened vertically, and together with both malleoli was affected by absorption and sclerosis. A review of the films taken earlier showed that the medial aspect of the talus was involved even at that time. An X-ray film taken on September 8 revealed a fracture through the posterior edge of the right talus with subsequent development of spotty bony atrophy or Sudeck's disease. The serum calcium content was 11 milligrammes per 100 millilitres, and the plasma phosphorus content 4.7 milligrammes per 100 millilitres. The Mantoux test failed to produce a reaction with Koch's old tuberculin (1:1,000 and 1:100). The Wassermann test produced no reaction, and the blood sedimentation rate was within normal limits.

DR. HALLOWS went on to say that Sudeck in 1900 had described a puzzling vasomotor phenomenon following comparatively mild injuries occurring mainly at the wrist or ankle. Various names had been employed to designate the same syndrome—for example, acute atrophy of bone, post-traumatic osteoporosis, chronic traumatic oedema, traumatic angiospasm and reflex nervous dystrophy. The diagnosis rested on the following features. (i) Severe persistent pain of a burning character with paroxysmal exacerbations was present, even when the affected joint was adequately immobilized. (ii) In the early stages the tissues in the immediate vicinity of the lesion were warm and swollen, and the muscles hypertonic in their efforts to splint the joint. The cutaneous temperature was elevated. At this stage osteoporosis was not evident, and pain was localized and limited to the site of the injury. (iii) In the later stages, pain was of a spreading nature, the periarthral oedema was more widespread, and the part was not so warm and flushed and might become hard, cyanotic and cold to touch. Osteoporosis appeared in the roentgenograms as an area of spotty decalcification. This later became diffuse, and at that time it was indistinguishable from osteoporosis of other origin, such as that due to inactivity, senility, under-nutrition or biliary fistula. It was not always possible to make the diagnosis of Sudeck's atrophy on the radiological appearances alone. The syndrome might be present, although

there was no X-ray evidence to support the diagnosis, or it might be subsiding when the bony changes were at their height. The pain did not run parallel with the course of the osteoporosis, because after sympathectomy the pain might rapidly subside, but the osteoporosis persisted for many months. The greatest value of X rays was in serial examinations. When coarse trabeculation occurred with evidence of recalcification, the peak of the disability had passed. The blood calcium and phosphorus contents were normal, but the phosphatase content of the blood was raised. The differential diagnosis was not easy in the early stages, owing to the vague findings, and later additional complications made the differentiation of this condition from other conditions rather difficult.

Dr. Hallows went on to say that De Takats and Miller considered that the early spotted osseous rarefaction due to hyperæmia was later complicated by superimposed atrophy of bone. The condition had to be distinguished from the following: (i) atrophy of disuse—this was painless, and not associated with pronounced vasomotor phenomena; the atrophy was diffuse, came on slowly and was relieved by weight-bearing and the assumption of active movements; (ii) tuberculosis—in this destruction of joint cavities was present, in addition to the characteristic X-ray appearance, and the Mantoux test produced a positive reaction; (iii) osteomyelitis—periosteal reaction, rarefaction and sequestrum formation usually distinguished this disease; (iv) other forms of osteoporosis including hyperparathyroidism, basophilic adenomata of the pituitary, the adreno-cortical syndrome, metastatic malignant lesions, multiple myelomata, senile osteoporosis and aseptic bone necrosis. De Takats and Miller considered the possibility of reflex vasodilatation as the underlying cause. In their studies of various cases, they carried out experiments with the plethysmograph and found that the affected limb was of a greater volume than its fellow and that there was an increase of blood flow in the limb. They also pointed out that reflex vasodilatation might occur as the result of (i) an axone reflex, (ii) vasodilators in the sympathetic system, (iii) a spinal cord reflex via efferent dilators in the posterior roots. This vasodilatation might persist for a considerable time, and these authors suggested that the inefficient treatment of the primary lesion and the emotional state of the patient might be factors which initiated and maintained this vasodilatation, as cortical release was known to exaggerate these reflex phenomena. The treatment was (i) that of the primary condition, (ii) by repeated injections of local anæsthetic agent into the injured area, (iii) by paravertebral sympathetic block, periarterial sympathectomy or sympathetic ganglionectomy, which had all been suggested in severe cases.

Dr. KEITH HALLAM said that he did not believe a fracture was present, and he did not agree that the patient was suffering from Sudeck's atrophy. He favoured the diagnosis of osteitis associated with superficial infection.

Dr. J. WHITAKER said that he was in agreement with Dr. Hallam. He believed that the condition was one of multiple osteitis, but with Dr. Colin Macdonald's wisdom arrayed against this view, the belief could be put forward only in a tentative fashion.

Dr. GEORGE SCOTT asked why one could observe a vascular change in the limb affected. When the child first entered the room the limb was dependant and cyanotic; later it was cold and pale.

Dr. JOHN JENS said that there were several factors against Sudeck's disease, especially the radiological picture. There was no convincing evidence of the usual stages or of the gross and generalized rarefaction that was usually met with, nor was there the "glass bubble" effect usually seen in these cases. Moreover, an insufficient number of bones was involved. The mottled patches of necrosis visualized in the skiagrams had the appearance of aseptic necrosis rather than infection. The final picture with deformity of the talus resembled greatly the usual picture of osteochondritis seen elsewhere. He was not sure that a fracture was not present through the neck of the talus. This was worth further investigation.

Dr. J. N. BURGESS said that he felt hesitant about calling it a fracture. He had studied the history, and thought that it was unlikely that the back of a hockey stick would strike the heel and produce this picture. He regarded the condition as a local osteitis rather than Sudeck's syndrome.

Dr. Hallows, in reply, said that he was glad the case had provoked so much discussion. He recalled a few points to explain the diagnosis made. First, it was not necessary in Sudeck's atrophy for a fracture to be present. The condition was essentially osteoporosis of the bones of the carpus or tarsus following minimal trauma. Moreover, the point

made by Dr. Scott favoured Sudeck's disease. Vascular changes in the limb were part of the syndrome. Reflex vasodilatation might occur through an axone reflex, through a spinal cord reflex, or via the efferent fibres of the posterior root ganglia. Cortical release was known to exaggerate these phenomena. It was recognized that in cases of hemiplegia, osteoporosis was met with on the side of the lesion. Dr. Hallows drew attention to De Takats and Miller's work previously quoted. Again, the injury was primarily minimal. He did not think that the radiological appearance was that of an *os trigonum* rather than that of a fracture, nor did this point influence the diagnosis.

## Public Health.

### FUTURE HEALTH SERVICES IN GREAT BRITAIN.

In the editorial pages in this week's journal reference has been made to an article by Dr. H. S. Souttar, President of the British Medical Association, published recently in *The Sunday Times*, of London, and also to the plan being made by the Parent Association for an emergency guarantee fund. As we go to press, we have received a copy of "A Plan for a National Hospital Service", which has been prepared by the British Hospitals Association. This plan is as follows:

#### A Plan for a National Hospital Service Prepared by the British Hospitals Association.

The establishment of a National Health Service is not in itself a matter of politics; but is entirely a matter of how to provide the patient with the best possible service. The following plan for a National Hospital Service, within a National Health Service, is prompted solely by the desire that the patient shall be assured of the best possible service.

This plan provides on a secure financial basis a comprehensive service free to the citizen, combining the resources of the State with all that is best in the existing services, including the voluntary hospitals with their pioneering spirit, tradition and experience.

This plan maintains a balance between the organization required for a National Service on the one hand and the obvious dangers in any national plan on the other hand—loss of the personal and human touch, loss of local interest and the danger of making the patient fit the scheme instead of the scheme being made to fit the patient.

It provides for the voluntary hospitals to be retained alongside Local Authority (or State) hospitals, but working together, as has already been done in some parts of the country, in a service properly planned and organized over Regions and centrally directed on a national basis.

It acknowledges that the success of the voluntary hospitals has been chiefly due to their methods of direct management and to the widespread personal interest which they have attracted to their work. It leaves the individual hospital the necessary freedom to endeavour to improve its own service and retains local interest.

In the long run, the patient will judge the national service not on the merits of its organization as a whole, but on the actual service which he receives from the individual hospital.

#### The Hospitals' Plan.

1. The Minister of Health would assume general responsibility for the direction and financing of the hospital service required within the National Health Service.

2. A Central Hospitals Board would be appointed by the Minister, to which, subject to his veto, he would delegate the major duties and responsibilities, including the framing of national policy.

This Board would be wholly or largely representative in its composition of the major agencies through which alone the Minister can design and operate the service, i.e., the medical profession, voluntary hospitals, the local authorities, the dentists, nurses and pharmacists. The Minister would therefore appoint the Board after consultation with the appropriate bodies.

3. Regional Hospital Boards would be appointed by the Minister and charged with the duty of planning and extending the hospital services so that the whole field of hospital treatment would be covered in each Region, while leaving the patient freedom of choice of hospital. One of the great medical teaching centres would be associated with each of these Regions.

The Board would decide the nature of the services required from each hospital in its Region and be vested



with such executive powers as may be necessary to ensure that its plan would be put into operation.

These Boards would be appointed after consultation with the appropriate bodies, including the universities, and would (as in the case of the Central Hospitals Board) be wholly or mainly representative in composition.

4. The individual hospital, therefore, through its Committee of Management, would remain entirely responsible for the internal management and general conduct of its affairs; but its first duty would be to provide the service required of it under the Regional plan.

5. The voluntary hospital would retain in trust its buildings and assets, thus preserving its entity and ensuring a reasonable degree of freedom in the interests of medical research and progress, of the service, of the patient and of the community.

6. Finance. So far as the voluntary hospital is concerned, it would receive payment from the State for services required and rendered, but would still be free to attract personal interest in its work and support for special purposes, for any activities outside the scope of the National Service, and for the general improvement of its services, including the comfort of both patients and staff.

It is believed that this plan will commend itself to the public, and particularly to the millions of those in all walks of life, without distinction of creed or political party, who know and believe in the voluntary hospitals. It interprets what the Prime Minister, in his Broadcast Appeal to the Nation, said on 3rd March, 1946: "We Want the Team Spirit." "Tradition with Progress."

The British Hospitals Association,  
52, Green Street,  
London, W.1.  
18th March, 1946.

#### The Dental Profession and the Government's Plan.

Members of the dental profession are perturbed about the British Government's health plan, and in *The Times* (London) of March 23, 1946, some points are quoted from a statement issued by Mr. W. G. Senior, the dental secretary of the British Dental Association. The extract quoted is as follows:

We dentists have recommended the provision of full dental facilities to successive government committees, including the Beveridge Committee and the recent Inter-departmental Committee on Dentistry. Where we part issue is in the method.

You are told that the service will be "free". As "free", we suggest as your "free" library or your "free" education. You will pay for the service through your rates and taxes, if not through other contributions as well. It is hardly likely that the Government will permit you to leave your own district to select a dentist in a neighbouring district, any more than you can at present pick and choose the educational rights which are open to you. It may well be that you will lose the essential freedom to select the dentist in whom you have gained confidence and to continue as a patient of his, even if you move out of the district. Sooner or later, and we fear sooner, you will find that you either go to a dental centre where you will do as you are told and receive the treatment which someone else considers you should have, or else you will be left to exercise the priceless freedom of paying for it all yourself privately.

We fear that the result of the bill may well be that you will virtually be forced to have such treatment as some official "Dental Estimates Board" may think you ought to have, and that you may find yourself forced to have such treatment, if at all, in the impersonal and public atmosphere of a dental centre.

### Obituary.

#### WILLIAM CAMAC WILKINSON.

We are indebted to Dr. Guy Griffiths for the following appreciation of the late Dr. W. Camac Wilkinson.

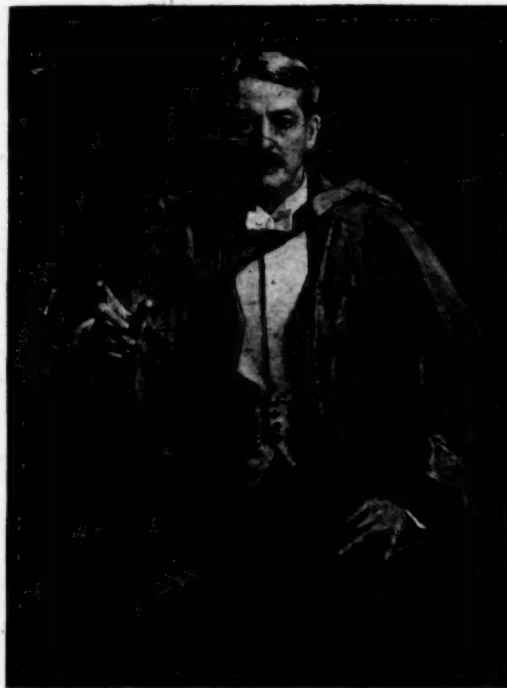
By the death in London on February 3, 1946, of Dr. Camac Wilkinson, Sydney has lost one of her oldest and most learned physicians.

William Camac Wilkinson was the eldest son and the last surviving child of the late Judge Wilkinson. Born on September 15, 1857, he was educated at the Sydney Grammar School, where he was a favourite pupil of the late Mr. A. B. Weigall, was captain of the school and won very numerous

prizes. Proceeding to the University of Sydney, he gained the First Scholarship at matriculation, the Cooper Scholarship for classics in the second and third years, and graduated in 1877 with first-class honours in classics and natural science and three gold medals.

There was then no medical school in Sydney, and he proceeded to London for his medical education. At University College he gained an Entrance Exhibition, the Atchison Scholarship for General Proficiency and the gold medals in medicine and clinical medicine. He graduated at London University in 1882 as M.B. and B.S. with first-class honours in medicine and forensic medicine and gained the scholarship and gold medal in forensic medicine. In the same year he was admitted a member of the Royal College of Surgeons. Proceeding to the Continent, he continued his studies at Strasbourg and Vienna, and in 1884 he took the degree of M.D. (London) and was admitted M.R.C.P.

He returned to Australia and became the first lecturer in pathology at the University of Sydney. He held this post from 1884 to 1901 and taught morbid anatomy, both gross



and microscopic, and bacteriology, not only to undergraduates, but also to some graduates who availed themselves of this, their first opportunity to study bacteriology.

In October, 1885, Dr. Wilkinson was elected to the Legislative Assembly of New South Wales for The Glebe and reelected in February, 1887. He presided over the commission appointed to inquire into the possibility of destroying rabbits by the introduction of an epizootic infection, work which some twenty years later was to be repeated by Dr. Danyz with no greater success.

In 1902, 1903 and 1904 Dr. Wilkinson served as an alderman, representing Belmore Ward in the Municipal Council of Sydney. Here, as a member of the Health Committee, he made a strong plea for the establishment of a city dispensary to combat tuberculosis. At the request of the Ladies' Sanitary Association he delivered a public address on this subject, and his work led some years later to the establishment, in quarters supplied free by the municipality, of such a dispensary; this has grown in the course of time to the clinic now operating in Surry Hills of the Anti-Tuberculosis Association of New South Wales.

From time to time Dr. Wilkinson paid further visits to Germany and to Austria, notably in 1891, when he worked under the direction of Dr. Robert Koch, the discoverer of the tubercle bacillus and of tuberculin, and he had the good fortune to introduce tuberculin into Australia at a



time when there was far less influenza than there had been on its introduction to London. Dr. Wilkinson returned to Berlin from time to time and entertained the greatest admiration for Koch, who later kindly accepted the dedication of a book by Dr. Wilkinson. The earliest use of diphtheria antitoxin and probably also of tetanus antitoxin in Australia was made by Dr. Wilkinson.

For many years he served in the Department of Diseases of the Ear, Nose and Throat at Sydney Hospital, where he exhibited great skill in such operations as those for the removal of tonsils and of adenoids and of the exploratory intranasal puncture of the maxillary antrum, which latter he was one of the earliest in Australia to perform.

In 1901 he resigned his lectureship in pathology and was elected lecturer in medicine at the University of Sydney and honorary physician to the Prince Alfred Hospital, posts which he held until his resignation in 1909.

In 1902 he was co-opted as a Fellow of the Royal College of Physicians of London, and in 1909 awarded the Weber-Parkes Prize for Studies in Tuberculosis.

Dr. Wilkinson was one of the founders of the Queen Victoria Homes for Consumption, and he was the founder and for many years the chairman of the Sydney District Nursing Association.

In 1909 he proceeded to London, where he practised for the next thirty years. Before he left a farewell dinner was tendered to him by colleagues in Sydney. He established a tuberculin dispensary in Kennington Road and later in Manor Street, Chelsea, and in Nottingham Place, and became recognized as an authority on the subject of tuberculosis and its treatment, especially by the use of tuberculin. For this he had qualified himself by his wide reading and by many special investigations. He had visited many sanatoria in England, Switzerland, Germany and Austria, and understood sanatorium treatment; indeed he was the first physician in Sydney to provide accommodation in a sanatorium for private patients; but he sadly recognized that it was utterly impossible to provide beds in sanatoria for more than at most 10% of the unfortunate patients requiring treatment. He therefore proposed to meet their needs as far as possible and especially in early cases by treatment in their own homes and the administration, at the physician's consulting room or in a public dispensary, of tuberculin. His knowledge of diseases of the larynx, the skin and the eye, where reactions to subcutaneous injections of tuberculin can be watched by the naked eye, qualified him to use this remedy with scientific accuracy. So, too, did his studies in secondary infection of the lung, as by pathogenic cocci, in the changes in the blood cells described by Arneeth, and in allergy; in all three of these he was the pioneer in Australia. He it was, too, who introduced to us the conception of tuberculous rheumatism, the distinction between human and bovine tuberculosis, the frequency of a renal tuberculosis underlying a pyuria, and above all, the extraordinary efficiency of the subcutaneous tuberculin test as used originally by Professor Koch in showing by the local reaction that an infection had taken place previously, by the general reaction that such infection was still active, and by the focal reaction where in the body such activity was.

After he had settled in London, Dr. Wilkinson continued to pay visits far afield for his own further instruction, as also for that of others; notably one to India and his last visit to Australia in 1923, when, at the request of Dr. Richard Stawell, he read a paper on ophthalmic tuberculosis at the Australasian Medical Congress.

During the war of 1914-1918 he served for a time as visiting pathologist to an army hospital in London.

He wrote numerous articles, some of them by special editorial request, in the *Australasian Medical Gazette*, *THE MEDICAL JOURNAL OF AUSTRALIA*, the *British Medical Journal*, *The Practitioner* and other medical periodicals. Besides a number of pamphlets he published the following books: "The Treatment of Consumption", London, 1908; "Tuberculin in the Diagnosis and Treatment of Tuberculosis" (an enlarged edition of the above), London, 1912; "The Tuberculin Dispensary for the Poor", 1923; "The Principles of Immunity in Tuberculosis", London, 1926; "Tuberculin: Its Vindication by Technique with Special Reference to Tuberculous Disease of the Eye", London, 1933.

His learning was astounding, because he had a magnificent memory and read sedulously; even when on a cricketing tour he would rise early and study for three hours before breakfast. This meant, of course, that he retired early to bed and forwent cards and billiards. As a speaker he could rise to heights of great eloquence. His lectures were delivered without notes, or perhaps merely with a few figures on the back of an envelope. He knew Germany and the Germans well. He admired their skill and thoroughness

and understood their psychology, and that the preaching of German professors meant practical action within ten years. In sending his subscription to the fund established in Sydney in 1911 to purchase a battleship of the Dreadnought class for the Royal Navy, he issued a strong warning of the danger to Britain and Australia through the armament of Germany which he had witnessed proceeding apace. His patriotism was exhibited also by an extempore oration he delivered to his class in pathology when the students had written on the blackboard: "Relief of Mafeking—too happy for lectures."

He was a trained musician. He sang simple songs in a particularly touching manner, and he was, when in Sydney, a regular member of the choir of Saint Andrew's Cathedral. At a grand opera he would carefully follow the stage singing on the score which he held in his lap and illuminated by one of the first electric torches seen in Sydney. His cultivated ear aided him in distinguishing various morbid sounds heard in the thorax.

His energy, enthusiasm and determination were very striking. Ordinarily he might appear very reserved, but his kindly nature endeared him to many devoted friends and pupils who had come to know him. He was a generous examiner; it was whispered that he did not set an unduly high standard for students because he recognized the strict limitations of the knowledge of those already qualified for practice. He did not go out of his way to attack others, but when attacked himself he replied very strongly and could not be intimidated by the reputation or position of any opponent.

Until late in life he was a great athlete. At school and at the university he excelled as a runner and jumper, at football and at cricket. He was a magnificent wing three-quarter and a very strong and patient batsman. During his first year as a medical student in London in 1878 the first Australian Eleven toured England and he occasionally played with them, filling the place of a regular member temporarily incapacitated. He was the first Australian to play regular county cricket in England and one of the earliest elected to membership of the M.C.C. English Elevens visiting Australia invited his honorary medical service, and he was frequently to be seen at the Sydney Cricket Ground, one of the few Australians wearing the famous M.C.C. hatband. At the instance of the Amateur Athletic Association of New South Wales he represented Australia on the first Olympic Games Council which revived these famous contests after nearly two thousand years. When his cricketing days were over he turned with his usual enthusiasm to golf; indeed he chose his residence near London at Virginia Water because of the excellence of the neighbouring golf links.

Dr. Wilkinson was twice married. He is survived by a son, Colonel A. C. Wilkinson, M.C. and bar, D.S.O., G.M., of the Coldstream Guards, and a daughter, Mrs. Horace Sheller, of Sydney. In his last illness he was devotedly nursed by his second wife.

Our portrait is reproduced from an excellent painting by I. M. Cohen, executed in 1930.

#### GEORGE WILLIAM BRAY.

DR. GEORGE WILLIAM BRAY, whose death at Hampstead, London, was announced recently in these pages, was a graduate of the University of Sydney. He qualified in 1925, and shortly after graduation went to the island of Nauru, where he held the post of government medical officer. Here he made observations on nutritional disease and leprosy. After leaving Nauru he went to England and became resident medical officer at the East London Hospital for Children and clinical assistant at the Hospital for Sick Children, Great Ormond Street. He was interested in allergic diseases and was appointed asthma research scholar at the Hospital for Sick Children. The insight that he gained into asthma and allergic diseases is reflected in his "Recent Advances in Allergy", published in 1931; this has appeared in its third edition and is recognized as the work of an authority on the subject. Bray practised as a paediatrician and held appointments at the Princess Elizabeth of York Hospital for Children and at the children's department of the Prince of Wales General Hospital, London. He also held an appointment at the asthma clinic of Guy's Hospital. He contributed a chapter on allergic diseases to Garrod, Batten and Thursfield's "Diseases of Children". He became a member of the Royal College of Physicians in 1933. Bray was one of a small band in the Old Country who have enhanced the reputation of Australian medicine.

## FRANCIS ERNEST LANGLEY.

We regret to announce the death of Dr. Francis Ernest Langley, which occurred on March 25, 1946, at Dandenong, Victoria.

## ALEXANDER YOUNG FULLERTON.

We regret to announce the death of Dr. Alexander Young Fullerton, which occurred on March 31, 1946, at Dundas, New South Wales.

## Correspondence.

## ULCERS IN THE MOUTH: AN APPEAL FOR HELP.

SIR: Your correspondent's appeal for advice on treatment of ulcers in the mouth prompts me to state that my experience, in quite a number of cases, is that they invariably clear up very quickly if given vitamin C (ascorbic acid), 100 milligrammes twice daily, and if, in addition, the bed of the ulcer itself is treated once (or twice) daily with Talbot's "Iodoglycerol". This is carefully applied by means of a tiny piece of cotton wool wrapped around the tip of a wooden applicator. The relief from this application is almost immediate, and by next day the ulcer is already well on the road to a cure. For a child, I omit the "Iodoglycerol", because it is unnecessarily drastic.

The condition appears to be very prevalent amongst women and also in children, and the fact that ascorbic acid is so beneficial would indicate a deficiency of vitamin C in the diet. Yet, most of the patients deny any lack of vegetables and fresh fruit, some even stating that particularly tomatoes are causative agents. Only last week, the possessor of two huge ulcers informed me that for years his diet has always included at least one orange *per diem*. He, too, quickly responded to treatment. Debility and over-tiredness are certainly predisposing factors.

As the formula for Talbot's "Iodoglycerol" is somewhat difficult to ascertain, I include it below:

Zinc iodide .....	15 parts by weight
Distilled water .....	10 parts by volume
Iodum .....	25 parts by weight
Glycerin .....	50 parts by volume

Yours, etc.,

174, Macquarie Street,  
Hobart,  
March 29, 1946.

B. HILLER.

## PLACENTA PRÆVIA.

SIR: With reference to the paper by Dr. R. H. Syred appearing in THE MEDICAL JOURNAL OF AUSTRALIA of March 16, 1946, on the current teaching of *placenta prævia*, it seems to me that more use could be made of Caesarean section.

At the Glasgow Maternity Hospital since 1933 it has been the custom of the late Professor Hendry and Professor Dugald Baird to perform Caesarean section in all cases of *placenta prævia*, regardless of the dilatation of the cervix. The maternal mortality rate dropped to less than 1%.

Professor Hart advises examination of the patient without gloves, as it is easier to detect the difference between placenta and blood clot and so rule out the possibility of accidental hæmorrhage.

The main reason for my appearing in print is to offer a plea for the more frequent use of local anaesthesia in all Caesarean sections. Since 1943 the American obstetricians have strongly supported its use as against general anaesthesia, and the editor of "Year Book of Obstetrics and Gynecology" condemns the use of spinal anaesthesia owing to the frequent occurrence of respiratory paralysis.

Local anaesthesia of a central suprapubic incision can be obtained by the use of ten millilitres of a 2.25% solution of "Parsetic" (Parke, Davis and Company), and the remainder of the bottle can be diluted with saline solution to make a 1% solution, which is strong enough to anaesthetize the lower layers. The frequent failure of a local anaesthetic to "take" may be due to the pH of the water not being right, and this can be avoided by the use of a solution made by a large drug firm for 4s. per two-ounce bottle. Once the abdomen is opened, no more local anaesthetic is necessary; packing of the abdomen can be dispensed with, as little

"spill" into the abdomen occurs if an efficient mechanical sucker, such as that put up by Clements, is used. The head can be delivered through a lower uterine incision by the aid of two Willets's forceps and some fundal pressure for at least two minutes. Patients undergoing this operation have been leaving hospital in fourteen days and can do their shopping in less than twenty-one days. All the staff necessary is two efficient nurses and a nurse for the baby.

The performance of Caesarean section in *placenta prævia* is little different, except that the blood volume has to be made up to its previous level by a blood transfusion before or immediately after the operation. The cause of the patient's sepsis is the amount of blood lost, and the amount of blood lost can be reduced by the avoidance of general anaesthesia, which increases hæmorrhage and kills many infants weighing under five pounds and others of nearly normal birth weight.

I should like to illustrate my remarks by a clinical history showing what can be done under local anaesthesia. Mrs. R. was admitted to hospital on May 7, 1945; she had suffered from phthisis and had one lung deflated for eighteen months previously. She was receiving fifty units of insulin per day for diabetes. Operation was performed on May 8, 1945, she was allowed out of bed in ten days, and she appeared at my surgery with her perambulator sixteen days after the operation.

Yours, etc.,

Stockton,  
New South Wales,  
March 17, 1946.

J. N. R. STEPHEN.

## OCCULT AMOEBIASIS IN EX-PRISONERS OF WAR.

SIR: In Changi camp I became convinced that many of the men, especially those who returned from Thailand, had contracted an amoebic infection which was overshadowed and masked by a more spectacular bacillary dysentery, and that in some of these patients a residual amoebic infection would persist, and probably defy all the usual tests for its detection until, possibly, a liver abscess should force itself on somebody's notice. Much that I have seen recently has served to strengthen this conviction.

There is an old rule that loss of weight without obvious cause in the tropics is usually due to an occult amoebiasis; in such a case a test course of emetine will always fix the diagnosis. I would rephrase that rule: Among recovered prisoners of war, failure to put on weight where an increase of weight would normally be expected (especially if there is also some looseness of the bowels, even intermittently) should arouse suspicion of occult amoebiasis. Failure to demonstrate amoebæ or cysts, or to find evidence by sigmoidoscopy, should not be regarded as conclusive, but a diagnostic course of emetine injections should be given.

The value of a diagnostic course of emetine is not very widely appreciated. Moreover, it used to be said that emetine ought not to be given unless the diagnosis is certain, since it might further irritate an already inflamed bowel. In my experience this is over cautious. No harm can be done in the circumstances outlined above; any irritative effects would be apparent by the fourth day, and the course could then be terminated without having caused any real damage. On the other hand, if an amoebic infection is present, any bowel looseness will have cleared up by about the fourth day, and within a fortnight after a six to ten day course there will be a marked improvement in the patient's general condition. Provided all other treatment has been suspended meanwhile, such a response to emetine can be regarded as confirming the diagnosis, and a full anti-amoebic routine should then be carried out.

Yours, etc.,

Sydney,  
March 21, 1946.

CARL E. M. GUNTHER.

## Australian Medical Board Proceedings.

## NEW SOUTH WALES.

THE undermentioned have been registered, pursuant to the provisions of the *Medical Practitioners Act, 1938-1939*, of New South Wales, as duly qualified medical practitioners:

Dixon, Margaret Mary, M.B., B.S., 1941 (Univ. Melbourne), 2, Kurling-gai Avenue, Turramurra.  
Hicks, John Douglas, M.B., B.S., 1936 (Univ. Melbourne), 22, Bradley's Head Road, Mosman.

Shortridge, Dennis Thorman, M.B., B.S., 1938 (Univ. Adelaide), 23, Karranga Avenue, Killara.

The following additional qualifications have been registered:

Levis, Miles Sterling, c.o. Bank of New South Wales, Head Office, George Street, Sydney (M.B., B.S., 1937, Univ. Sydney), D.O.M.S. (R.C.P. and S.), 1940.  
Tomlinson, Paul Angus, 23, Victoria Street, Epping (M.B., B.S., 1937, Univ. Sydney), M.S., 1945 (Univ. Sydney).  
Gunther, William Willis, 29, Howe Street, Lambton (M.B., 1928, Univ. Sydney), B.S., 1945 (Univ. Sydney).  
McGirr, John Joseph Gregory, 23, Morton Street, Wollstonecraft (M.B., 1942, Univ. Sydney), B.S., 1945 (Univ. Sydney).  
Reye, Ralph Douglas Kenneth, Royal Alexandra Hospital for Children, Camperdown (M.B., B.S., 1937, Univ. Sydney), M.D., 1945 (Univ. Sydney).  
Rickard, Raymond Victor, 50, Ellalong Road, Cremorne (M.B., 1924, Univ. Sydney, F.R.C.S., England, 1935), Ch.M., 1945 (Univ. Sydney), F.R.A.C.S., 1945.  
Short, Leslie Frederick, Prince Henry Hospital, Little Bay (M.B., 1945, Univ. Sydney), B.S., 1945 (Univ. Sydney).  
Cameron, Ralph George Bryant (M.B., 1938, Univ. Sydney), M.R.A.C.P., 1944.  
Flynn, James Aloysius Feodus (M.B., Ch.M., 1922, Univ. Sydney), D.O. (Oxon.), 1925, D.O.M.S. (London), 1925, F.R.A.C.S., 1930.  
Flynn, Gregory Stephen (M.B., B.S., 1935, Univ. Sydney), D.O.M.S. (London), 1937, F.R.A.C.S. (Oph.), 1941.  
Holt, Ian Wellesley (M.B., B.S., 1939, Univ. Sydney), D.T.M., 1944, D.T.H., 1944, Univ. Sydney.  
Robinson, Arthur Ross (M.B., B.S., 1938, Univ. Sydney), M.D., 1942, Univ. Sydney, M.S., 1944, Univ. Melbourne, F.R.A.C.S., 1945.  
Williams, Frederick James (M.B., B.S., 1921, Univ. Melbourne), D.T.M., 1934, Univ. Sydney.

The following change of name has been registered:

Hungerford, Doreen Annie, M.B., Ch.M., 1926 (Univ. Sydney), 1, Wickham Terrace, Brisbane; name now Rutledge, Doreen Annie.

#### QUEENSLAND.

The undermentioned has been registered, pursuant to the provisions of *The Medical Acts, 1939 to 1940*, of Queensland, as a duly qualified medical practitioner:

Gold, Mervyn Roy, M.B., B.S., 1939 (Univ. Adelaide), Westwood Sanatorium, Westwood via Rockhampton.

The following change of name has been registered.

Rutledge (*née* Hungerford), Doreen Annie, M.B., Ch.M., 1926 (Univ. Sydney), Atherton.

#### TASMANIA.

The undermentioned has been registered, pursuant to the provisions of *The Medical Act, 1918*, of Tasmania, as a duly qualified medical practitioner:

Walker, Trevor Harcourt, M.B., B.S., 1940 (Univ. Sydney), Ulverstone, Tasmania.

## The Royal Australasian College of Physicians.

### ANNUAL MEETING.

The eighth annual meeting of the Royal Australasian College of Physicians will be held at Sydney on Thursday and Friday, May 2 and 3, 1946. The programme will be as follows:

Thursday, May 2, 1946.

10.15 a.m.—Council meeting in the council room of the College. The admission of new members will take place at this meeting.

2.15 p.m.—Meeting of the general body of Fellows in the Stawell Hall.

2.30 p.m.—Annual general meeting in the Stawell Hall.

3 p.m.—First scientific session in the Stawell Hall. "The Treatment of Thyreotoxicosis with Thiouracil and Allied Compounds", Mr. H. R. G. Poate, President of the Royal Australasian College of Surgeons; "Pulmonary Tuberculosis: The Case for the Patient", Dr. A. H. Macintosh; "Pregnancy in a Patient with Addison's Disease Treated for Four Years by Implantation of Desoxycorticosterone", Dr. Alex. Murphy.

Friday, May 3, 1946.

10.15 a.m.—Continuation of council meeting.

2.15 p.m.—Second scientific session in the Stawell Hall. "The Physiological Basis of Emotion and Temperament", Professor C. G. Lambie; "Acute Methyl Alcohol Poisoning", Dr. John H. Colebatch; "Cardio-Vascular and Respiratory Sounds"—Demonstration of Recordings, Dr. E. H. Stokes.

8.15 p.m.—The fourth Annie B. Cunningham Lecture on Nutrition. "Nutrition and the World Engine", by Professor Eric Ashby. The wives of Fellows and members are invited to attend this lecture, which will be delivered in the Stawell Hall.

### CRICKET MATCH.

The annual cricket match between teams representing the medical profession and the dental profession in New South Wales was played at the Sydney Cricket Ground on Wednesday, March 6, 1946. The match was won by the medical men by one wicket and seventy runs.

It was notable that, while the dentists turned out in numbers to support their team, the only members of the medical profession present were the players. It has been suggested that next season the New South Wales Branch of the British Medical Association might take some official interest in the match.

The scores were as follows:

#### Dentists.

K. Binns, b. Calov	7
R. Bain, c. and b. Calov	6
J. Sagers, l.b.w., b. Foulsham	19
A. Lawes, c. Alex Johnson, b. Foulsham	0
E. Morris, b. Foulsham	11
R. Norton, b. Goldman	29
M. Cusick, l.b.w., b. Bettington	0
O. Stenmark, c. Calov, b. Foulsham	3
A. Smith, b. Bettington	6
P. Keyte, n.o.	1
C. Winning, c. Adrian Johnson, b. Bettington	10
Sundries	3
Total	95

Bowling: Calov, 2 for 28; Foulsham, 4 for 32; Bettington, 3 for 17; Goldman, 1 for 15.

#### Medical Men.

F. Leventhal, c. Lawes, b. Winning	48
Adrian Johnson, run out	2
Alex Johnson, l.b.w., b. Binns	2
W. Foulsham, st. Norton, b. Stenmark	15
J. Goldman, c. Norton, b. Stenmark	12
K. Millingen, b. Stenmark	0
C. Lawes, c. Morris, b. Stenmark	13
R. Bettington, not out	52
W. Calov, b. Bain	2
G. Halliday, c. Binns, b. Smith	15
Sundries	6
Total for 9 wickets	167

Bowling: Winning, 1 for 10; Morris, 0 for 33; Binns, 1 for 27; Stenmark, 4 for 17; Keyte, 0 for 9; Lawes, 0 for 22; Bain, 1 for 14; Cusick, 0 for 9; Smith, 1 for 2.

## Naval, Military and Air Force.

### CASUALTIES.

ACCORDING to the casualty list received on March 27, 1946, Major R. S. Bennett, Taringa, Queensland, has been removed from the "seriously ill" list, and Captain K. C. M. Madden, Woombye, Queensland, previously reported as missing, is now reported "presumed to be dead".



## Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

- O'Neill, John Galvin, M.B., 1943 (Univ. Sydney), 5, Wallis Parade, North Bondi.  
 Bolliger, Walter, M.B., B.S., 1945 (Univ. Sydney), 300, Sailor's Bay Road, Northbridge.  
 Mortlock, Jack Mills, M.B., B.S., 1944 (Univ. Sydney), Queen Street, Barraba.  
 Mooney, Austin Jeremiah, M.B., B.S., 1942 (Univ. Sydney), Captain, Inter-Service Medical Wing (A.M.F.), New South Wales L. of C. Area.  
 Mansell, Hazel, M.B., B.S., 1945 (Univ. Sydney), "Woodrow", Herbert Street, Summer Hill.  
 Smith, Gordon Stewart, M.B., B.S., 1945 (Univ. Sydney), Marrickville District Hospital, Marrickville.

## THE FEDERAL MEDICAL WAR RELIEF FUND.

THE following contributions to the Federal Medical War Relief Fund have been received.

### Queensland.

- L. Bedford Elwell, £50.  
 Ella Murphy, £25.  
 F. G. Power, C. N. Matheson, J. Cameron Hemsley, G. F. Brade, £21.  
 W. F. Machin, £20.  
 P. A. Earnshaw, £15 15s.  
 L. Lofkovits, £15.  
 Mortimer Hishon, Alan E. Lee, Glen V. Hickey, C. G. Wilson, V. N. B. Willis, H. V. Foxton, H. J. Taylor, T. I. Wallace, Max Berg, T. R. Edmeades, J. Lloyd Simmonds, Basil L. Hart, £10 10s.  
 J. Muir Smith, M. M. Ramsden, Joan Dunn, G. C. W. Holmes, A. S. Roe, Felix Arden, K. Aaron, E. J. McGuinness, H. G. Wilson, H. W. Anderson, Leslie G. Hill, R. K. Lyons, J. F. Dunkley, Horace W. Johnson, M. J. Gallagher (senior), Arthur W. Fox, Egmont Theile, John A. M. Spera, £10.  
 C. R. Ralston Huxtable, £6.  
 A. Christine Rivett, Anonymous, J. G. Avery, Alec E. Paterson, Athol Quayle, J. Brody, A. M. Langan, S. Lefman, C. F. Marks, P. H. Payne, £5 5s.  
 J. J. Fitzwater, J. G. Morris (Brisbane), C. G. Williams, J. A. Arratta, £5.  
 Lillian V. Cooper, Walter Peretz, £3 3s.  
 S. M. Stephenson, £3.  
 Nettie G. Reid, J. C. Squires, C. C. Minty, K. B. Fraser, K. Stanton Crouch, Alan A. Barr, £2 2s.  
 J. A. Nye, C. R. Boyce, B. Rappaport, £2.  
 Charles Mansfield, R. A. M. Miller, P. B. Guastalla, D. C. Fison, G. Candi, £1 1s.  
 Total: £627 8s.  
 Amount previously acknowledged: £4,876 3s. 3d.  
 Grand total: £5,503 11s. 3d.

## Medical Appointments.

Dr. W. Monz has been appointed acting visiting medical officer, Aboriginal Settlement, Cherbourg, Queensland.

Dr. D. H. K. Lee has been appointed a member of the Council of the Queensland Institute of Medical Research, in pursuance of the provisions of *The Queensland Institute of Medical Research Act of 1945*.

Dr. John Gardner McGlashan has been appointed Chief Quarantine Officer (General), Northern Territory, as from March 1, 1946.

## Books Received.

"Surgical Nursing and After-Treatment: A Handbook for Nurses and Others", by H. C. Rutherford Darling, M.D., M.S. (London), F.R.C.S. (England), F.R.F.P.S. (Glasgow); Ninth Edition; 1946. London: J. and A. Churchill Limited. 7½" x 5", pp. 704, with 211 illustrations.

"Case Studies in the Psychopathology of Crime: A Reference Source for Research in Criminal Material", by Ben Karpman, M.D.; Volume II, Cases 6-9; 1944. Washington: Medical Science Press Station L. 11" x 8½", pp. 746. Price: \$16.00.

"Atomic Energy in the Coming Era", by David Dietz; 1945. Sydney: Angus and Robertson Limited, New York: Dodd, Mead and Company. 7½" x 5", pp. 186, with illustrations. Price: 12s. 6d.

"Personality Factors in Counseling", by Charles A. Curran, Ph.D., preface by Michael J. Ready, introduction by Carl R. Rogers; 1945. New York: Grune and Stratton. 8½" x 5½", pp. 310, with 71 illustrations. Price: \$4.00.

## Diary for the Month.

- APRIL 9.—Tasmanian Branch, B.M.A.: Ordinary Meeting.  
 APRIL 9.—New South Wales Branch, B.M.A.: Executive and Finance Committee.  
 APRIL 9.—New South Wales Branch, B.M.A.: Organization and Science Committee.  
 APRIL 12.—Queensland Branch, B.M.A.: Council Meeting.  
 APRIL 16.—New South Wales Branch, B.M.A.: Medical Politics Committee.  
 APRIL 16.—New South Wales Branch, B.M.A.: Ethics Committee.  
 APRIL 16.—New South Wales Branch, B.M.A.: Clinical Meeting.  
 APRIL 17.—Western Australian Branch, B.M.A.: General Meeting.

## Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

**New South Wales Branch** (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phoenix Mutual Provident Society.

**Victorian Branch** (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

**Queensland Branch** (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

**South Australian Branch** (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

**Western Australian Branch** (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia. All Public Health Department appointments.

## Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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